THE PIONEERS

Vol. 2

The Génad ε ma

24.

Stranger

The next month was extremely busy. Miller, miffed at the way the Réjé had changed the terms of the agreement about the dam, did nothing to help Chris resolve the water crisis. Mennea had to travel to Morituora twice for an entire day, entertain its Mégu with rover rides, and bring him to Mɛlwika in the rover to see the Arjakwésgluba dam, before any kind of agreement about water could be reached. Part of the difficulty was that the Mégu had no concept of cubic *doli;* he knew that on a day when there was very high demand for irrigation water, the water level in Moritua would drop half a *doli,* or a quarter of a meter. Amos had to draw up an agreement based on changes in Moritua's water level. Even then it was difficult to be sure the agreement would hold; communication with Moritua was poor, and the amount of water released at Mɛlwika was not equal to the amount that arrived at Moritua because the water flowed the ten kilometers faster when the river was full than when it was low, and because a larger percentage of the water sank into the ground when the river was low than when it was high. Amos wasn't sure how to predict the water flow needed any particular day. The rainfall in the next two months was another key factor. If rainfall was light the three villages above Moritua—-Nénaslua, Béranagras, and Mɛlwika—would pull more out of the Arjakwés than predicted and Moritua would send more downstream for irrigation, and the reservoir would run dry too soon.

But at least the three villages now had permission to tap the river. Every rover or wagon that ran from Mɛlwika to Mɛddoakwés now added a three-kilometer detour past

Moritua and a stop long enough to inspect the water level marker by the dam. Several times Amos had to run up to the dam after sunset and climb down to the control house to adjust the overnight flow because the rover returned and reported that Moritua was too low.

Their efforts won Chris and Amos the enduring affection of everyone in Nénaslua and Béranagras, however, and that perhaps made it all worthwhile. Villagers from both places began to walk to Mɛlwika to see what they could sell there or see if there was any day work at the forge. Since the rover went to Mɛddoakwés every Tridiu morning with a trailer to bring the engineers and scribes to Mɛlwika for classes, then brought them home at night, and the rover gave people rides, Tridiu became the day for a market at Mɛlwika. Soon the rover was pulling both trailers to hold everyone. The Mɛddoakwés market charged for selling space and charged a sales tax; Miller held off doing the same to encourage the creation of the market, and as a result within a month a small market day had sprung up.

The enclosure also began to acquire more population. About once a week someone arrived, having heard Mɛlwika was an amazing place with remarkable machines and lots of food and work. Sometimes it was a single man seeking work; sometimes a family fleeing their drought-stricken farm. Amos had to pass the job of assigning land to Behruz, who often could spare some time from running his chemistry equipment to take someone to an unused house plot or to a few agris on the southeastern side of the Péskakwes. In every case the person had to negotiate with Miller to determine the rental of the land, for Miller had no intention of selling any of it, at least not yet.

More farmland along the Péskakwés meant more irrigation. The Mennea family had two days and two afternoons a week with no school commitments. On those days they went to the Péskakwés to repair all three dams and extend the irrigation ditch. They received virtually no help from the Miller clan, all of whom now had full-time work at the forge or in the fields, but there were four new families in town wanting water for their fields and two soldier families with farmland as well. The Menneas wanted some assistance to repair all three dams on the Péskakwés, so they paid for the help, but the farming families worked on the extension of the irrigation ditch for free. The trick would be to keep the ditch full; when the Péskakwés dried up, they'd have to divert irrigation water from the Arjakwés to the lowest of the three ponds, then pump it uphill to the ditch and fields.

The school also took more time. Pɛrku came in for classes with Amos and soon saw the potential value of literacy; he had his second-in-command, Aisu, join him for classes on reading, writing, numbers, and arithmetic. Hints that perhaps his soldiers should learn as well fell on deaf ears; they could not conceive of a reason they would benefit. There was, after all, nothing for them to read except hymns of Widumaj and a few old inscriptions, and Pɛrku could not yet conceive of soldiers' manuals. The uselessness of literacy for most people in an illiterate society was pressed on them rather forcefully. Furthermore, literacy classes were socially ambiguous; no one wanted to take them with someone from another social class. The scribes had to have a separate class from the engineers, who needed a separate class from Pɛrku and his second in command. At that rate, the school would exhaust its resources training a few people only, none of whom was willing to pay a significant amount.

Thornton's computer played a key role in changing the situation, because it could create books and thus supply materials for people to read. Thornton, Lébé, and Kwétɛru thus tackled a new task: producing reading material. They had already revised the literacy book and printed more copies of it. Now they created pages of a new book. Lébé wrote a short essay on cooking, with ideas for baking bread better. Kwétɛru wrote a description of Mɛddoakwés. Thornton, with his father's help, wrote a description of corn and tomatoes, plants the Eryanɛ had never seen before. May supplied an essay about the Earth and its cultures, stressing similarities with Eryano language and culture. Amos wrote an essay in English about building the dam, which Thornton translated into Eryani. Lua wrote two pages about taking care of one's teeth. They stuck to relatively neutral, uncontroversial subjects for their first book. The result was short—20 pages—but it could be expanded, and it gave the scribes something to read in practicing their new skills. When it was finished, a month after Thornton and Lébé's wedding, they all admired it with some pride after dinner.

"This needs to be done regularly," said Chris, looking at it. "Let's not think of this as a book, but as volume 1, issue 1 of a variety magazine. Can you create some sort of cover?"

"Sure," said Thornton. "Just give me an idea what to make it look like!"

"A cover's possible," agreed May. She looked at it again. "As a periodical, it'd be a pretty sad publication on Earth, but here it's totally new."

"And it'll get better," added Liz. "I'd be more worried about the content. This series of publications must be absolutely uncontroversial, if we want to get it accepted."

“But it has to be interesting!” said May. “We need articles on a variety of subjects. The cooking article shows why women need to read. The article on corn and tomatoes shows its importance to farmers. The article on the dam shows its importance to the engineers. But we need to reach as many audiences as possible.”

“We should try to print a hymn of Widumaj in each one,” said Mary. “And it should be at the very beginning each time. Bahá’u’lláh stresses that literacy exists to spread the Word of God.”

“In a few months, once it gets some momentum, we can ask our slowly growing audience what they want to read about,” said Kwétɛru.

“It occurs to me that the publication needs a title—maybe *Wɛrsai Gɛno*, `Monthly Knowledge,’” suggested May. “Underneath it should say in smaller print ‘Published by the Mɛlwika Génadɛma’; there’s the word *gɛn*, knowledge, again. And we need some sort of logo for our *Génadɛma* that will remind everyone of it; perhaps an open book and a roof over it.”

“I can make that,” agreed Thornton. “It would be nice if we can give a date for each publication, too. I can certainly put the month, but there’s no year to include.”

“This is the thirty-third year in the reign of Duktɛrésto,” replied Kwétɛru. “No, I think it’s the thirty-fourth.”

“We’ll ask Wɛrétrakɛstɛr,” replied Chris. “One more matter to consider; we should set a price, and sell them.”

“We’d better start low,” suggested Thornton. “Fortunately the paper and ink is still free.”

“How is the paper supply?” asked Chris.

"We have enough for six months, even at an accelerated consumption," replied Thornton. "I think we still have twenty boxes to open. The bigger problem is wearing out the computer and printer, running them twenty-four hours a day. I still don't have all the encyclopedia printed, though we are up to the letter L. I don't have all the English-language Bahá'í writings printed yet, either. There are thousands of pages of websites we need. If you add to that printing hundreds of copies of a twenty-page magazine every month, we'll soon not have enough hours in the day to do it all."

"Let's face that problem when we reach it," said Chris. "Make the Bahá'í writings your priority, and do the rest when you can. Does our editorial team think you can get the modifications on the cover done tomorrow afternoon? I'm thinking the publication will be a perfect thing for Thornton to take to Wɛrétrakɛstɛr's class the day after tomorrow. Reading and discussing the articles will keep them busy, so you won't have to prepare a lesson, and they can give us invaluable advice about the publication."

"Maybe the class in Mɛddoakwés can even contribute an article every month," added Kwétɛru.

May, Thornton, and Kwétɛru did indeed have *Wɛrsai Gɛno,* volume 1, number 1—they had to invent a word for 'volume'—ready for Wɛrétrakɛstɛr's class on Dwodiu. There was plenty for the class to critique. "Published by the Mɛlwika Gɛnadɛma"—there was no word for "published" and the word they invented, *bulpubliko,* was debated for half an hour because of its non-Eryani stem. Finally an Eryani word—*tutiksken*—was coined. The word they created for "editor"—*éditu*—generated even more discussion because no one could propose a word without understanding the process it described, and the process

proved quite complicated to explain to a group of people who worked mostly in an oral culture. Eventually it was replaced by a coined word, *gɛgrébu*. Thornton was fascinated by the approach—which he had noticed in other Eryani words—of reduplicating the first syllable and shifting the length of the first vowel to create a word for a related meaning.

The articles were eagerly read and discussed by all. At the end Wɛrétrakɛstɛr announced he would indeed provide something every month—an interpretation of a hymn of Widumaj, usually—and Thornton gratefully accepted, knowing the innovation had been accepted, at least in intellectual circles. He made a mental note to ask Roktɛkɛstɛr and even Aryɛru for articles. Who knows? Perhaps eventually the Réjé herself would provide something.

They turned to Wɛrétrakɛstɛr's lesson—which had to be shortened—then broke for lunch. Before Lébé was able to sit down with Thornton with her bowl of soup, Mitruiluku sat instead.

"I am fascinated by the idea of this *yori*," he said. Thornton thought for a moment and realized Mitruiluku had said "seasonal thing," a rough translation of "periodical."

"Yes, so are we."

"I keep thinking about all the things that could go in a *yori.* Writings on all sorts of different things. Stories about the past. Hymns and other words of the Great Prophet. Advice. Descriptions of events. The possibilities are endless."

"Especially as more and more people learn to read. One thing that happens is more and more people establish their own *yoris.* There will be monthlies, weeklies, even dailies. And they become very different from each other."

“Hum. Interesting. Thornton, what can I do to help? I want to work on this. It is fascinating.”

Thornton looked at his friend. Mitruiluku was a bit older than he, recently married with a two year old daughter. He was bright and well educated. He was open-minded, but not too opinionated, like some of the others. And he was from the western shore; perhaps he could bring some experience from there.

“I’ll be honest with you, friend Mitruiluku. I don’t know whether we need anyone to help, and even if we do, I don’t know whether we have the money to help.”

“Friend Thornton, my job here in the palace takes two or three days a week only. I yearn for more responsibility; to acquire students of my own, like Wɛrétrakɛstɛr. He will give me permissions to teach several subjects, too. But there are no students. Perhaps I can write for your *yori.*”

“Perhaps you could. On what?”

“I don’t know. Tell me what you are looking for, and I’ll try something.”

“Hum.” Thornton was caught unprepared to offer advice. “Maybe the stories of the past you mentioned. Do you know the names of all the monarchs? And how long each one reigned? I think stories about the kings and queens would be very useful and interesting.”

“Yes. I can also tell the stories about the *Wɛspakɛla,* the Western Shore, and its cities. Few here in the east know them.”

“That would be very good! Yes, I think that is an interesting subject for an essay. Can you prepare something in one or two weeks? That will give time for editing.”

“Yes. Editing; I had forgotten about that! Yes, I can try to present something to you in two weeks.”

“Good, I will look for the first one,” replied Thornton.

He asked Mitruiluku about his wife and daughter, a subject that engaged Lébé as well. Mitruiluku hesitated to speak to a strange woman, even one he had seen in class for several months; it was not the traditional way. But Thornton managed to mention subjects of common interest and they started to talk almost normally.

He got up to bring the three of them tea. But Wɛrétrakɛstɛr got up and walked to the tea pot as well. “Let’s talk a moment, outside,” he whispered.

Thornton nodded and they walked out of the garden, to the dormitory area. “Two days ago, I retreated up into the mountains in prayer,” the widu began. “I left before dawn and reached my cave in time to pray most of the day. Toward the end of the day I dozed off and had a most peculiar dream. In the dream I saw a mother dove and her brood of chicks; seven chicks altogether. She was shielding her chicks under her wing against grave danger; I could see it was grave by the way she was behaving. Then I saw an eagle in the sky, circling on the breezes, searching for prey. And he spotted the mother and her chicks and dove toward them.”

Wɛrétrakɛstɛr stopped. Thornton waited.

“And?” he finally said.

“That’s all I saw. I believe the mother dove is your grandmother, Mary, and the seven chicks are the rest of the Mennea family. I had a very strong premonition of that. But I don’t know what the eagle represents. Maybe the Réjé; maybe a chief priest; maybe

someone else here in Mɛddoakwés. I don't know. But I am a widu; these dreams are not meaningless. It is a warning."

"Okay." Thornton didn't know what else to say. "You're sure it refers to my family?"

"Yɛs." He replied with the English word, which had become slang in the class.

"Is there something we should do?"

"Yes. I think you should be very, very careful about the *Wɛrsi Gɛno*. It will stir opposition faster than anything else. The mix of articles, for example. The article on your plants might imply a peasant should be able to read; it also could be seen as subtly negative about Éra. The article on cooking implies that *women* should be able to read. This is not wise. Not, not wise." He shook his head.

"I see. What do you suggest?"

"For now, stress the hymns of Widumaj, and include some articles on engineering or science. If you're going to create articles on cooking, don't give them to everyone."

"Very interesting. Thank you, Wɛrétrakɛstɛr, for your help and advice. I'll explain this to May and to my father very carefully. And I am sure we will take your advice."

"I hope so. I will write articles about the hymns of Widumaj for you. And I will be careful; the first few times, I will avoid opinions rejected by the priests. I think they are the most dangerous, like Wɛranodatu and Sarébɛjnu."

"I see. By the way, Mitruiluku just asked me whether he could participate in the publication. I suggested he try writing something."

"Good! He is smart and mature. I'll talk to him about my concerns."

"Thank you."

They returned to the garden and Thornton went back to Lébé and Mitruiluku, a bit more confident in including the young man in their publications, though he wasn't sure what sort of publications they would now have.

A half hour later Wɛrétrakɛstɛr began his lesson on the Hymn of the Peasant. It was as if he were angry at the priests and their opposition to his ideas; he offered interpretations which even his most vociferous defenders found difficult to accept and which seemed calculated to anger Wɛrandatu. The young priest was indeed outraged and the entire class broke down into a series of arguments until Wɛrétrakɛstɛr's wife appeared and chastised everyone for making her baby cry. It was a clever way to break up the argument. Thornton suspected she had listened to quite a few of the discussions, as he could often hear her doing her chores on the second floor balcony, out of sight from the class but definitely in earshot of everything.

Wɛrétrakɛstɛr called for the tea early, so everyone could calm down. Several people, including Wɛrandatu and Sarébɛjnu, walked to their rooms quickly. Wɛranodatu left his copy of the magazine on his seat; Wɛrétrakɛstɛr scooped it up quickly. Sarébɛjnu had taken his back to his room.

Just as the two young priests reappeared, Mirtuiluku headed back to his room. Wɛranodatu sat at his seat and looked around.

"Where is my copy of the Monthly Knowledge?" he asked.

"Maybe you took it back to your room," suggested Wɛrétrakɛstɛr.

He looked at the widu closely. "I did not," he replied.

Wɛrétrakɛstɛr shrugged and resumed his commentary on the hymn, even though everyone wasn't seated. He was much more restrained in his interpretation; Thornton was

surprised, because it had seemed that Wɛrétrakɛstɛr had been building toward a point, and when he got to the verse where he could have made the point, he didn't. Mitruiluku returned a minute after the talk began, but didn't miss much. Soon they were back to a hearty exchange of ideas. It was friendly but tense.

The class broke up shortly thereafter, giving Thornton and Lébé two hours before sunset. They walked around the city—as they often did—talking and looked at the shops.

"What did Wɛrétrakɛstɛr say to you?" she asked in English, as it gave them privacy among the crowds.

"That *Wɛrsi Gɛno* is premature. It should not include articles about agriculture because it suggests peasants should read. It shouldn't include cooking, because that suggests women should read; he particularly stressed that point."

Lébé was taken aback. "But why *shouldn't* they read? Aren't they as capable as men in such things? It's the *old* way of thinking."

"But it is a powerful way of thinking. I wonder whether we should consider his advice."

"How?"

"Well, what if the alternative is the Réjé ordering all publishing stopped, and my computer and printer destroyed? Isn't it better to publish some things, instead of none?"

"Probably." She didn't sound convinced.

"For example, let's say we published articles for women separately from *Wɛrsi Gɛno* and gave them to women in the classes. And let us say we develop more general articles that could interest everyone—from generals to unmarried women—for the

magazine. Then the magazine would interest everyone, and we would have special publications for smaller groups."

Lébé thought. "That might work. But it won't solve a problem that *must* be solved; teaching everyone that women as well as men must learn to read."

"Let's leave that to Widumaj for now. Wɛrétrakɛstɛr said we should include more hymns, and that's good advice. We started by arguing people should learn to read so they can learn the hymns, because Widumaj commanded that everyone, even children, should learn the hymns. I think we should print that verse from Widumaj at the beginning of every issue, and feature hymns with simple interpretations, then include general interest articles. That approach is more likely to be acceptable."

"That is the strongest argument we can make," she agreed.

They continued down the main street from the agéra or market square to the south gate, at the far side of the city. It was the city's widest and straightest street—it was almost perfectly straight—and was bustling with foot and animal traffic. When they reached the southern end there was a small square and several caravanserais, facilities for accommodating the people, animals, and goods moved by caravan. They crossed the square to the other side just as a beautifully dressed woman rode through the gate on a magnificent horse, followed by several friends and attendants. They watched her pass.

"Who's that?" he asked.

"Princess Awstɛr, I think. She is the Réjé's oldest daughter, and thus is second in line to the throne, after her younger brother."

"Oh, I've heard stories about her! She's quite an interesting person."

“Yes. Since the queen plays the role of king, the princess plays the traditional role of queen; she is concerned about the sick and the poor, charity, the temples, making the city more magnificent, and she is the one the people meet when they have a grievance.”

“Yes, I’ve heard a story about how wise she is in judgment.”

“Exactly. Her husband, Kandékwɛs, is Lord of Mɛddoakwés.”

They watched Awstɛr, “morning star,” ride up the street toward the palace. Then they walked back up it themselves, strolling and looking at the stores, usually shaking their heads when the proprietor started his sales pitch. The second shop sold a curious variety of items. Oranges, which were not easy to find in Mɛddoakwés that time of year. Several types of citrus fruits Thornton had never seen before. Dried banana slices; Thornton had never seen them before either. Several trays filled with herbal remedies. And then one pile caught his eye; little round rubber balls! He reached over and picked one up.

“Honored, drop it,” said the merchant, whose curly black hair and accent bespoke Sumi background. Thornton did and the ball bounced. He caught it and threw it down harder, and it bounced back to his hand.

“It is amusing, is it not, Honored? Children love them. Even adults can enjoy them.”

“They are a marvel.” He chose his words carefully, so that his accent wouldn’t betray his foreignness. But the Sumi’s Eryani wasn’t very good anyway. “Where does it come from?”

“Sumilara. It’s called the Volcano Island in Eryani. There is a tree there that produces a white sap when you cut it. They collect the sap and dry it. You can heat it up and change its shape very easily, but when it is cold it remains hard and bounces.”

“What do you call it?”

“Téni, Honored.”

“Téni.” He repeated it. It no doubt came from Eryani *ténan,* “to stretch.” He rolled the ball in his hand, thinking how happy Amos would be to see it. “How much is it?”

“Six dhanay, Honored.”

“Six dhanay! That’s robbery!”

“I have to pay for the caravan to bring it, Honored! The caravans are very expensive!”

“Two.”

“Honored, I have a family to support, two would be robbing me. But I can come down to five.”

“No, five is too much. At such prices, how can you sell any at all?” Thornton picked up a second ball, slightly smaller than the first. “How about these two for five dhanay?”

“*Two* for five dhanay? Honored, that is a hard bargain. They cost about that much to bring here.”

“Two dhanay for shipping? The volcano island is not that far.” Thornton opened his purse and pulled out five dhanay. “Five for the two. That is my final offer.”

“I cannot feed my family, Honored. I cannot feed my family.” But he took the five, and Thornton put the balls in his pouch.

They walked on. “You did very well,” said Lébé. “I was impressed. I think you pushed him too hard; I would have given him six.”

“I didn’t have six.”

“Oh. Jordan will enjoy them.”

“They’re for Amos, not Jordan. The balls are made out of what we call rubber. The tires of the rovers are made out of rubber.”

“They are? The material looks very different.”

“The rubber must be treated so that it remains hard, but otherwise it’s the same. Amos will want a lot of this substance, some day. Many, many lɛdhis.”

“That will cost many, many lɛdhay!”

“Another problem to solve.”

They walked back to the square and out the eastern gate as the sun began to decline. Mitru had brought the rover to pick them up—Chris had let him do the chore often, lately—and Kwétɛru, who let the two of them walk in privacy, had already arrived. Three or four people had already climbed onto the trailer, awaiting the ride to their villages.

Thornton and Lébé climbed onto the back as well, leaving the cab for Mitru and Kwétɛru, who had become good friends. No doubt Kwétɛru would summarize the entire day’s discussion for his friend, who regretted that his sister was going instead of him.

Kwétɛru stuck his head out of the window. “Hey, Thornton!”

Thornton leaned over. “What?”

Kwétɛru laughed, then whispered. “After you left there was quite a fight. Sarébɛjnu accused Mitruiluku of going into his room during the last class and stealing his

copy of *Wɛrsi Gɛno*. Mitruiluku denied it and Sarébɛjnu almost struck him! Then Wɛrétrakɛstɛr said if there was a fight he would expel them both, and he was sure you would give Sarébɛjnu another one."

"Really? I saw Wɛrétrakɛstɛr take Wɛranodatu's copy."

"You did? I think Wɛrétrakɛstɛr told Mitruiluku to take Sarébɛjnu's. But why?"

"I'll tell you later."

"Okay."

The sun touched the horizon. Mitru turned on the engine, holding the starter a bit too long; Thornton made a mental note to tell him not to do that. He put the rover in gear just as a woman ran up and jumped on board. The sun had disappeared below the horizon, so it was time.

They headed east along the walls, then took the road to Moritua. Like Boléripludha, it was just two and a half kilometers from town, though toward the east rather than the northeast. They stopped at the dam and Kwétɛru jumped out to look at the water level while two people got off—including the woman who had made the flying leap to get on—and three more climbed onto the trailer. One had several large sacks of seeds and a bag of copper pots; a strange combination of things. But with the irrigation a lot of people had been moving to the three northern villages, and they soon learned about the free rides on the trailer three times a week. Those in the back rearranged themselves to accommodate the young stranger and greeted him.

The rover started forward and turned onto the rough dirt track that ran two and a half kilometers to Boléripludha. Mitru kept the speed down because the ride was pretty rough. They ascended out of the Arjakwés flood plain and into the irrigated oasis fields of

their next stop. When they reached Boléripludha he honked the horn once, loudly, to let everyone know the rover had arrived. It let all the dogs in the village know as well, and they all started barking.

One person in back got out and two more climbed in. Just as Mitru turned on the engine, a woman appeared out of a side street. She was Owémé, wife of Andrulu, Lord of Boléripludha.

"Wait, wait!" she said. She ran up to Mitru's door. "There is a woman in my house who walked here yesterday from Mɛddoakwés. She said she was looking for the Gɛdhémɛs. She speaks with a very funny accent; I think it's Kɛrdan. She was very ill and exhausted and I took her in, and now she is so weak she can't even walk."

Thornton heard the whole conversation and stood up. "Is she Gɛdhɛmé herself?"

"I don't know. Maybe. She is now very ill. She cannot walk to Mɛlwika, and I cannot take care of her."

"Then we shall take her to Mɛlwika," said Thornton. "Can we drive this wagon to your door?"

The woman looked at the rover and trailer. "I think you can."

"Can we drive out the other end? I don't want to back up," said Mitru.

"Yes, you can go straight, then along the edge of the village to the Mɛlwika road," she replied.

"Good." Mitru put the rover in gear and followed the woman slowly up the alley to her house. The alley was plenty wide enough in most places, though the woman did have to move some of her neighbor's baskets into doorways as she went. The alley was only sixty meters long, ending at fields; the house was 2/3 of the way down it.

The woman led Thornton into her house. The typical village house was a square of rooms set around a central courtyard, where everyone ate and worked. This one was bigger, with more rooms and two courtyards. The main court had a small herb garden at one end and a fired clay basin filled with slimy water. The woman led him to a door with a curtain blocking it, which they pushed aside.

Inside was a woman who appeared to be in her fifties. She was lying on a straw mattress on the floor with a blanket next to her. She looked extremely thin and weak. She turned her head slowly to the persons entering.

"You're looking for the gɛdhémus?' asked Thornton. He switched to English. "I'm one of them."

"What?" the woman replied, in Eryani.

"I'm sorry. I am one of the gɛdhémus. We live near here; maybe fourteen dɛkɛnt."

"My mother is gɛdhɛmé, but she is very old. When she heard about you, she sent me to find you. She said she wanted to see another gɛdhémé before she dies. But I did not know Mɛddoakwés is so far!"

"Where did you come from?"

"Frachvála, a little village near Isurdhuna in Chárda—"

"In Kɛrda!"

"Ah, yes, that is how Easterners say it."

"How did you get here?"

"Ah. . ." she thought about his question. "I walked. I had no food, and it took a very long time. More than one suksdiu; maybe ten days. I don't know."

"Did you eat?"

“What?”

“Eat? Did you have food?”

“I took food with me, but it was gone in four or five days, and until this kind woman took me in, I had nothing. Please, Honored, I beg you, be kind to me and help me.”

“Of course, it will be our honor to help you. What is your name?”

“Eva.”

“Eva? That isn’t Eryani.”

“No. My mother gave me the name because it was her mother’s name.”

“And what is your mother’s name?”

“Isafela.”

“Isafela?” Thornton was puzzled.

“Yes, Isafela.”

“Do you know where on Gɛdhéma she came from?”

“I think she said a city named Peru.”

“Peru.”

“Yes. Honored, I beg you, I am very weak and ill. I cannot talk now.”

“Oh, of course. We will take you to our house; my sister is a healer and she can cure you.”

“Praise be to Esto.”

“Can you stand?”

The woman raised herself up with her arms, then fell back.

“Never mind.” Thornton bent down and put his arms around her, then lifted. He was surprised how light she was; or how strong he was. The woman who had taken her in grabbed the blanket and a small backpack that held the stranger’s possessions.

They walked out to the rover. Several men jumped down off the trailer to help lift her into the back; Lébé took the blanket and spread it out under her. The woman looked alarmed by the strange device.

“Don’t worry. Don’t worry,” Lébé said.

Mitru started the engine again and began to drive them slowly to Mélwika.

25.

Stories

Thornton was able to call home with the two-way radio; fortunately someone heard the chatter on the rover parked in its garage and responded. When they pulled up to the door Amos and Behruz swung it open and came out to carry Eva straight to the infirmary, where Lua immediately examined her.

"No questions for at least a day," she said, when she came out. "Eva is seriously malnourished and dehydrated. She has diarrhea and I don't know why. I asked her many questions, but barely understood her answers; she practically speaks another language."

"Ask Pɛrku to help you," suggested Thornton. "He's from the same area as she, and knows both Eastern and Western Eryani."

"I may ask him for help tomorrow. Anyway, I've given her antibiotics on the theory they'll help, and plenty of liquids with saline and glucose in them. Thank God the lady at Bolèripludha gave her lots of carrot soup; it saved her life, I'm sure."

"She'll get better?" asked May.

"I think so, but she's not out of danger."

The next morning Lua reported the patient was indeed better, but still needed rest. It wasn't until the next morning that she let Chris, May, and Thornton come in.

By then Eva was washed, dressed in a new robe, and sitting up in the bed. She had a large glass of hot, sweet, mint tea near her and urged the others, in her western shore accent, to get tea for themselves. They went out to get tall glasses of the brew.

“We are very honored to have you in our house,” Chris began. “You must not feel that you are an imposition at all; you are an honored and welcomed guest. We understand you came all this way just to see us, and almost died in the process. Such sacrifice touches our hearts.”

“You are very kind. Lua could be my daughter, but has been like a mother to me. I am very thankful to Esto, Yésu, and Mariá,” she replied.

“Lua tells me she has already told you a little of our story. Perhaps you could tell us your story.”

“Yes, of course. Where shall I start? And please excuse my way of speaking; I will try to speak in the manner of the Eastern Eryanɛ. Mother and I live in a little village called Frachvála, near Isurdhuna in Chárda; that is, in Kɛrda. A little less than a month ago we walked down to the market in Isurdhuna with onions to sell and many things to buy. The Réjé had just arrived in town a few days earlier for the Summer Festival. Perhaps you’ve heard of it; it includes many games, much merriment, and the entire cycle of stories of Widumaj are recited. The court comes every year for it. While we were in the market we saw an old friend who supplies flour to the court when they are in town, and he told us he heard from his friends in the court that there was a family of játhémás—I’m sorry, gɛdhémɛs—living near Mɛddoakwés. He hadn’t heard much more, except they have a lot of magic, and many people worry about them. He added that he thought maybe people would want to kill them, but I think that was his idea, not the idea of the person he spoke to. This is how rumors get started.

“Anyway, mother was very frightened for you! She wouldn’t talk about anything else for two weeks. You must understand that she has had a very hard life because she

was játhémé. She was dropped here when she was nineteen. She spoke none of the language. She walked into a village and the people there thought she was a spirit. They stoned her and drove her out of the village. She collapsed in the woods and was dying when some children from the village found her and told their mother. The mother came, saw she was dying, concluded that spirits don't die so mother must be a human instead, and took her home to nurse her. But the villagers didn't trust her and within a week they demanded that mother be driven out of the village into the forest again, so Élisé—the woman who took her in—that night helped her walk to Frachvála. Actually, mother only got a short way into the woods and collapsed again, so Élisé went ahead, got a niece to come back to mother, stay with her that night and help her slowly to walk to Frachála. Élisé was from there, you see.

"When mother got to Frachvála she stayed with Élisé's mother until she became strong. By then she learned some of the language, so the villagers were less suspicious, and Élisé's mother was well known and pious, so people were more willing to trust her than Élisé, who was young and new in the village where she lived. Élisé's husband was so angry, in fact, he divorced her after their baby was born.

"Anyway, my mother was treated like a daughter to Fálé, Élisé's mother. Within a year Fálé found someone to marry her, Thüjü—"

"Thüjü—?" asked May, puzzled.

"Yes. Hum. Dhugu," said Eva. "And Fálé would be Bɛlé here in the east."

"Oh; she's a flower and he's a lucky one," said May, in English and then in Eryani.

“But he wasn’t lucky at all, for mother or for himself. He took her to his village, spoke against her so that no one would talk to her, and constantly complained that she didn’t know women’s work, which of course she didn’t because she was játhémé. After I was born he became angry I was a girl and he divorced her. He put me out on the mountainside to die, but mother came and found me and took me home to Frachvála, to Fálé. No one would marry her then, so she raised me and lived with Fálé until she died.”

“And your father?”

Eva hesitated and looked down. “He married another woman, killed her when she bore him a daughter, fled into the hills to escape punishment, and has never been seen again.”

“That’s a terrible story,” said Thornton.

Eva sighed. “I was raised by my mother and Fálé, and that made me a better wife. My husband was a patient man, but was very unhappy with me. We had two sons and two daughters. One of each died in childhood. Then he died three winters ago. So my two children and I moved in with mother.”

“How does she live?” asked May.

“Mother has always been very strong and independent. It is both her greatest strength and her greatest weakness, you could say. She makes things; she is very, very good at decorating cloth with colored thread. I think they sell her work even in Mɛddoakwés. And she has a little land; she farmed until a few years ago. I run the farm now with my son, who is almost old enough to get married. We survive.”

“And how old is your mother?” asked May.

“She has been on this world almost fifty years, and she was 19 when she arrived.”

“That means she left earth about 55 earth years ago,” said Chris in English.

“And she’s 74!” added Thornton.

“Sixty-nine,” corrected Eva, for Thornton had spoken in Eryani; she hadn’t understood the English part of the conversation. “And I am forty-seven.”

“That would be 52 Earth years,” added Chris, in English. “Eva, how was your mother brought to Éra?”

“That’s a story too! She was going from the house of her parents to another village, where her future husband lived. She was riding an animal like a horse. I can never remember the word right. Burá—”

“Burro?” asked May, rolling the r.

Eva’s eyes lit up. “That’s it! Burro. They stopped by a stream to rest and the animal became frightened by something and ran away, so she ran after it. She chased it a long way up the mountain, for a long time—she said she chased it up to the snow—and when she did she encountered these spirits, or people. She calls them people, but says they looked very different from us, so we are happy to call them spirits. They were surprised to see her and took her into their spirit ship. They brought her here.”

“Did she talk to them?” asked May.

“Talk? No, I don’t think so. She never said anything about talking.”

“Interesting,” said May.

“And the people of Frachvála, are they still suspicious of your mother?” asked Thornton.

“There are a few who think she and I are both witches, but they are few. Most people love my mother. She is considered a native.”

“Now, why did you come to find us?” asked Chris.

“Because mother would have come instead! After two weeks of talking about you and thinking about you and worrying whether you were alright, she became quiet. A week later I noticed she had been eating little and saving up flour. When I asked she said she was planning to walk here to find you. I begged her to wait until the Réjé went back to Mɛddoakwés and accompany the court, but she wouldn’t wait. The only way to stop her was to go myself.”

“This trip would have killed her!” said May.

“Indeed, it almost killed me.”

“And what is your message?” asked Chris.

“I feel embarrassed to give it! Mother said I must say that you should not give up, but work very hard to learn the language and love the people. If you love the people, all will be well. And that Frachvála would welcome you very warmly if you came to live with us. They have come to see that Játhémás can be good people. Mother wanted me to insist that you immediately come home with me, if I found you hungry or oppressed.”

“We are honored and moved by your mother’s message,” said Chris. “But as you can see, we are not hungry or oppressed, and we have learned the language.”

“And you love the people,” added Eva. “I see that, too. I am very moved by what you have done.”

“We have been blessed by Esto,” replied Chris. “We were also blessed that when the aliens captured us, it was the entire family—my wife, her mother, my three children, the husbands of two of them, and my grandson. When you are stronger you will meet them all. As a result, we had unity and strength. We also had resources because we were

traveling together; the aliens brought all our possessions with us, including our two rovers. And we also had much experience living in many different places on Earth, so we were able to adjust to Eryana. And we prayed a lot."

"I can see. I am very envious. And I am sad that mother will not meet you."

"That is unfortunate," agreed Chris.

"Eva, where on Earth was your mother from?"

"She said she was from a place called 'Peru.'"

"Place? When I asked you two days ago, you said it was a city," said Thornton.

"I'm not sure what Peru is. Her village was called Santa Rosa; I remember that much."

"What language did your mother speak?" asked May.

"Language. She spoke Játhéman, I suppose."

"There is no Játhéman. Do you remember any words?" persisted May.

"Words? Hum. She would say 'no' for 'né' and the opposite was 'si.' And when I did well she would say 'muy bueno.'"

"Sounds like Spanish, to me. Eva, did she ever called játhéma 'tierra'?"

Eva thought for a moment. "I think she did."

"I'll check to see whether Peru has a place named Santa Rosa," said Thornton.

"But what is your mother's name? Isafela is not Spanish," said May.

"Isafela is her name." Eva thought. "Of course, in eastern Eryani it would be Isabela. We don't have a `b' sound."

"Isabella!" said May, suddenly. "Yes, that is correct. That's her original name!"

Eva was surprised. "Perhaps so. I've never heard her say `Isabella.'"

“And did she have a second name? A name of her family?”

“Well, she was the wife of Thüjü.”

“No, I mean from back on Earth.”

“Oh. I don’t know. I suppose she did; I think I’ve heard it before.”

“I see,” said May.

Eva looked at the three of them. “You really have been so kind. I don’t want to be an imposition on you; I’ll plan to get well as fast as I can, so I can go home.”

“Don’t worry about being an imposition,” said Chris. “I said you weren’t and I meant it; you aren’t. Right now, just get well. We’ll try to find a way to get you home safely; we know people in Mɛddoakwés who might be able to help.”

“Thank you so much! I will be forever in your debt!”

“It is our pleasure,” Chris assured her. “Well, we should let you get more rest.”

They said goodbye to Eva and walked out of the room. They sat at the table with the rest of the family and Kwétɛru and repeated her story.

“Amazing. Two very courageous women,” said Liz.

“I don’t know how she’ll get back,” said Mary.

“With proper provisions, it might not be too difficult,” said May. “We can give her ten day’s food, a blanket, even some matches to start a fire. Or money to stay in caravanserais.”

“I’d rather find a caravan she can travel with,” said Chris. “There must be some from Mɛddoakwés.”

“I’m angry at our alien friends,” exclaimed May. “It’s unethical to do what they have done, dropping people in the middle of a strange society with no assistance!”

"I'll raise the matter with Philos," said Thornton. He rose from the table and headed up to his room, where he ignored three incoming e-mails and pounded out a long, informative, but only gently admonitory e-mail to Philos about Eva.

After sending it, he walked out of the house, into the enclosure by the tower. Someone new had arrived and he was building the first house not backed against the wall; it was, if Thornton remembered Amos's map right, between the intersection of two alleys and the central square. He stopped to shake hands with the builder, a thirtyish man named Mimɛnéstu, "remember God," who was a potter and brickmaker. Thornton directed him to the site of the future school and suggested he talk to his father about excavating clay there, because they had talked about digging a basement for the building.

Then he continued to the garrison tower. He entered and went up to the top floor and knocked on Pɛrku's door.

"Come in," replied the sergeant.

Thornton walked in. "Hail, Commander Pɛrku."

"Hail, Honored Dhoru. Please have some tea. Sháré! Bring us tea!"

"In a moment, Honored," she replied.

They sat on pillows on a mat, facing each other. "Perhaps you have heard of our visitor," said Thornton. "She walked all the way here from Isurdhuna."

"Isurdhuna! That is a long way. Why did she come?"

"Her mother is gɛdhémé, and she wanted to be sure we were alright."

"Really?"

"Indeed. It is extraordinary."

Sháré came in with a pot of tea and poured the men steaming mugs. They drank.

“I thought you might like to visit her some time, since she’s from Chárda, like you.”

“Yes, it would be nice to hear the old mother tongue. What village?”

“`Frachvála’ I think she said.”

“Frachvála. Hum. I’ve heard of it. It’s southwest of Isurdhuna, just a short walk—maybe half a day—whereas my village was a day’s walk to the north. But we’re still neighbors.”

“Frachvála doesn’t sound Eryani to me.”

“Oh, but it is! Western Eryani, that is. Here we would say. . .” He paused to think. “Braktkwɛla. But the two `k’ sounds become `ch’ and they are hard to pronounce together with a `t’ in the middle, so I guess the second one becomes silent.”

“Braktkwɛla.” Thornton realized it meant *broken wheel.* “So how did the wheel get broken?”

Pɛrku laughed. “I don’t know! The village is probably at the end of a dirt track where wagons cannot go any farther. It’s at the base of the cliffs.”

“That’s possible.” Thornton sipped his tea. “We’re worried about how she will get home. She almost died trying to get here. Is there any caravan or military unit she could travel with?”

“Maybe. Caravans usually go from Mɛddoakwés to Volcano Island, or maybe as far as Ora. Sometimes you’ll find them going all the way to Néfa, the biggest city in Chárda. Here, of course, Néfa is pronounced ‘Néba.’”

“Oh!” said Thornton. “It comes from ‘nɛbu’?” It was the word for the hub of a wheel.

“Yes, of course. And you know the word ‘Ora’ too.” Pɛrku pointed to his mouth.

“What is it the mouth of?”

“The Glugluba, the great gluba that stretches several days walk to the west. At the middle it is so deep it is dark all day, and there are no plants growing on the bottom because of the darkness. It is a realm of spirit, truly. Anyway, Ora is built at its mouth, where it exits the mountains.”

“Now, tell me, you must have walked from Isurdhuna to here. What are the stages in the journey?”

“The stages.” Pɛrku pulled out a pad of paper, which he proudly carried; it had become a status symbol in Mɛlwika to have a pad from the school. He stood up and got a quill pen; the local goose supply had suffered severely in the last few months, when Behruz had introduced the art of writing with a quill or reed pen. Pɛrku opened his pad and dipped the pen in the ink.

“The first stage is here to Mɛddoakwes.” He drew a line from the right edge a few centimeters toward the left. “That isn’t much of a stage; maybe half a day. From there, it’s two easy stages to Akanakvéi, where you went to get the limestone.” He added two more lines but angled toward the lower left corner; the southwest. “From there it is two more stages to the southern shore of Volcano Island, or Sumilara. But you have to take water with you because there often is none, because you are crossing a salt desert. No one lives there.” He added two more lines toward the southwest. “Then you reach Anartu, the chief Sumi city, and a royal city. It’s near the shore of the Mɛrmora, the dead salt lake. Nothing lives in it, it is so salty. From there, Ora is two more stages to the west and south.” He added them to his map. “The caravans go there. Other caravans go due north from Ora

two stages to Néfa, which is near the base of the mountains where the Rudhisér descends to the plain. The Rudhisér is the main river of Chárda; here we would call it the `rudhakwés.'"

"Ah," said Thornton. It was the *red river.*

"It's called that because the soil of Chárda is very red, so when it rains, the river is red as well. It's appropriate when you remember that Chárda means `land of the heart.' Many poets have called the Rudhisér the blood of the heartland."

"Very beautiful."

"So, from Néfa it is west two days to reach Isurdhuna, which is in a beautiful north-south valley in the mountains. The Rudhisér splits into three streams, coming from the north, south, and west, so the plain is often called `triiséra' or 'place of three rivers.' It's beautiful, rich land; intensively farmed. Some bear three crops a year. When you're there you can see why it's the heartland of the Eryanɛ."

"So, from here, Isurdhuna is eight days walk?"

Pɛrku looked at his map, then nodded. "It depends. The way the army marches, it would be four days. If you were taking a caravan it would probably be eight days just to Ora, because it would stop in Anartu two days. Then you'd have to wait for a caravan to Néfa, then wait there for another one to Isurdhuna."

"How long does the Réjé take to get there?"

"Several weeks, because she makes week-long stops in Anartu, Ora, and Néfa."

"And each stage is probably about sixty dɛkɛnt."

"Hum." Pɛrku considered. "Yes, about that."

Thornton looked at the crude map, adding distances. Mɛddoakwés to Isurdhuna, then, was about six hundred dɛkɛnt; two hundred miles, three hundred kilometers. The rover could drive it in one day!

“Pɛrku, let me ask you this question. Where in the sky do you see Skanda, at Isurdhuna?”

“Skanda? It is below the eastern horizon. You must go east toward Néfa to see it every day. The eclipse occurs at sunrise in the mountains half way between the cities.”

Thornton nodded. That made sense; Isurdhuna was almost half way around Éra, which was five hundred forty kilometers in circumference at the equator. The route Pɛrku traced had not been straight, either, so it probably was three hundred kilometers away by road.

“And there are no military groups going to Isurdhuna from Mɛddoakwés? No messengers?”

Pɛrku shook his head. “Nothing regular. Military units do go from city to city. Every year recruits from the east are sent west and vice versa. Recruits from the south go north and vice versa. Units change their assignments and march from city to city. Caravans usually wait for a troop movement because the soldiers are a protection; there are bands of thieves in the desert. The Réjé sends a messenger to Ora about once a month and at other times as needed. The commander at Ora probably sends messengers occasionally to Néfa. But not to Isurdhuna, because it is not a royal city, with a garrison of troops.”

“I see. She has to go with caravans, then, unless we could take the two rovers and drive her home.”

“The caravans would be her best opportunity,” agreed Pɛrku.

“Thank you; I’ll tell my father.”

“Good. He needs to come talk to me about his taxes; he must pay them soon.”

“Lord Miller advised us to wait and ask the Réjé that the taxes be kept for the school.”

“No, that won’t work,” replied Pɛrku. “And now that I’m here I’m the tax collector anyway, not Lord Miller. He’ll have to pay his share I’m sure. Maybe if he asks the Réjé, she’ll agree it can be used for the school.”

“That’s what we are hoping for.”

“I’ve never heard of such a thing. Temples to Esto don’t pay taxes, and some have extensive lands that they rent to farmers; but everyone else pays.”

“But when someone dies, can’t they leave their property for purposes of doing good for people?”

Pɛrku was puzzled by the question. “People can leave their property to a temple, yes, and the temple can use it to do good. If they leave it to a temple, it is not taxed.”

“How many temples are there?”

“There are temples in Mɛddoakwés, Ora, Néfa, Isurdhuna, Tripola, Anartu, and Bɛllɛdha; all the royal cities. I think there are some small, rural temples, also, that receive property, probably without permission, but who will stop them?”

“I see.” Thornton swallowed the last bit of tea in his cup and rose. “Commander Pɛrku, I must go. Thank you for your hospitality.”

“It is a pleasure. Go with Esto.”

“Thank you. Go with Esto.” Thornton rose, bowed slightly, and walked out of the tower. He returned to the house and summarized everything for his father, who was initially angered that his son had gone and asked the questions he had planned to go ask.

“We’ll have to talk to Miller about his suggestion that we ask for a tax relief for the school,” said Chris, as he calmed down. “Perhaps we should give most of the land to the school; maybe the school’s harvest would be tax-free.”

“Maybe we should try to get the school recognized in the same way as a temple,” suggested Liz.

“We’ll have to talk to the Réjé, and she’s on the other side of the world right now, so I guess I had better pay my taxes to Pɛrku.”

“Dad, there’s something else we should consider,” said Thornton. “Pɛrku made a map of the route to Isurdhuna. It’s about three hundred kilometers from here. We could drive Eva home in a day.”

Chris hadn’t thought of that, or if he had, his expression wouldn’t admit it. “How far, did you say?”

“About three hundred kilometers. It’s at least twelve time zones to the west. If we left at dawn, we’d have twenty-four hours of daylight to get there. Coming back we’d have to spend at least two days because the days would be shortened by going east.”

“And there’s a road?”

“I . . . didn’t ask Pɛrku about that. But caravans and wagons go back and forth.”

“Not many wagons, I’m sure.” Chris considered. “What about thieves?”

“He mentioned them.”

“I bet. This is a dangerous world.” He thought. “Well, we can’t go now because we have to harvest our crops starting in a week. Maybe in a month, though. And that will give us time to think about the idea.”

26.

Preparations

To go or not to go: It became the talk of the Mennea home for the next week. Eva soon heard of the discussion; the next day she came out of her room to eat with them, and the day after she insisted on doing a few chores. No doubt she liked the idea, but she remained out of the discussion.

"Well, let's summarize," said Chris the next evening. "I confirmed details with Pɛrku today, when I paid my taxes. The road to Isurdhuna is of the same quality, more or less, as the royal road to the limestone quarry. If we took a bulldozer blade we'd be sure to get through. There are some thieves, but our machines would scare them away and Miller says the sound of our guns would scare their horses. If we took both rovers we would have redundancy and the resources to repair either one."

"But no communication with us," said May.

"We have a solution," replied Behruz. "I now have the lead and sulfuric acid to make two 8-volt batteries. They'd be like the rover batteries, but bigger. We can charge them up with the rovers before they leave. They'll run a cell phone for several weeks."

"So you'd leave one cell phone here?" asked May.

Chris nodded. "We could go there in one very long day and come back in two. But it would make sense to take our time. We can stop at the Volcano Island for a day and visit with Kwétɛru's uncle and aunt. It would give us a chance to see the Sumis first hand and see what the geology and ecology of the region is like. The same with Ora, Néfa, and Isurdhuna. If we spent two days at each, the trip would take eight days. Coming back we

could take the northern road from Néfa to Bɛllɛdha and back to Mɛddoakwés and could do it in two or three days. That would expose us to every major city in the world except for Tripola, in the southern hemisphere."

"From the sound of things, that would be about three quarters of the world, in terms of population and influence," said May. "I wish I could go, but I suppose a pregnant woman couldn't take a trip like that."

"It's too dangerous," agreed Lua.

"Why would you do this, instead of a quick trip?" asked Liz.

"If we're going to help this world, we need to understand it, and traveling will help," replied Chris. "I think that's the best reason to go."

"But who will go?" asked Amos. "Chris and Eva."

"And you," said Chris. "Thornton and Lébé should go, too. We need Kwétɛru."

"If I'm going, I'd like to take one of my surveying students," said Amos. "Sarésunu. He's got a knack for geology and he's from Néfa."

"Mitruiluku's from Ora's leading family," added Thornton. "If we took him along, he'd show us that city. He wants to write, too; maybe he can write up an account of the trip."

"It sounds like the trip is getting heavy with natives," said Chris. "But that's a good thing. They can show us around, so we'll learn more, we'll be safer, and we can give them a quick trip home. Thornton, when you go to town can you talk to Wɛrétrakɛstɛr? He may have suggestions for things we should do or see."

"We'll need to cancel classes," said Lua.

“Unless the rest of you can handle them in our absence,” replied Chris. “I think you can. It’d be only one class of the surveyors and scribes.”

“I can handle the surveyors,” agreed Behruz. “May can do the scribes.”

“I wish I could go!” said May. “What a bad time to be pregnant!”

“I’ll record some of the conversations,” replied Thornton. “I can use the cell phone or attach a microphone to the computer and store interviews or conversations on the hard disk, then transfer the files to the website storage Philos gave us. We can play them back when I get back.”

May brightened. “That would be great! I’d like to hear all the different regional accents. I’m never sure what I hear here isn’t contaminated.”

“Let’s not get ahead of ourselves,” exclaimed Chris. “The corn is ready for harvesting starting tomorrow. By the time we’ve spot-picked the half of the crop that’s ripe, it’ll be time to thresh the wheat. We’ve got three weeks of hard work ahead of us.”

The next morning they headed for the fields to pick corn. Chris hired a half dozen helpers—new arrivals to Mɛlwika who needed a bit of money, whom the Mennea family did not know—and in half an hour they learned what to pick. The rainstorm had come in the nick of time; another few days and the tassels would have been stunted and the ears small. As it was, they lost five percent of the crop. But the loss was more than compensated by the fact that they had had several months and a previous crop to prepare the soil, flushing out salts and adding nitrogen, and since corn was not a native of Éra it had no natural enemies, so the plants were healthy. The harvest was incredibly bountiful.

They came home that night exhausted. Thornton washed, then checked his e-mail while Lébé washed. Philos, as usual, forwarded three or four queries from sentientologists to him; they were thrilled actually to ask a human questions about their theories of human behavior. Half the time he asked his grandmother what she thought—she was the greatest expert—but tonight he felt able to handle the questions himself. May sometimes helped as well, and often oversaw his responses in order to count them toward his degree. She counted his hours of study meticulously and kept a record.

Lébé had discovered the joy of a warm shower, something she had never experienced before marrying Thornton. She took her time and returned to their apartment several minutes after he had finished with the computer and handed it over to Kwétɛru. She found him prostrate on the floor of their living room.

"Are you looking for something?" she asked.

He shook his head, then broke his silence with a whisper. "I'm sorry, I'm praying. Let me finish."

"Okay," she replied in English. She sat cross legged to watch, which he tried to ignore.

She had arrived not long after he had started; she had a long wait. She was intrigued by what she saw. She could barely hear the words—usually he recited them at a whisper—so she could not follow what he was praying, but the gestures and motions impressed her, leaving her with the impression that something very powerful was happening. When he finally finished he sat on the floor with his eyes closed for a moment. Then he opened them.

“I’ve never seen you do anything like this.”

“No.” He paused. “Bahá’u’lláh revealed three obligatory prayers. Here, obligatory means you must choose one prayer every day and say it. Usually I say the short obligatory prayer, but it must be said between noon and sunset. Today I was so busy picking corn I couldn’t do it. The middle obligatory prayer has to be said three times a day, and two of the times were already past. So that only left the long obligatory prayer, so I said it.”

She digested what he said a minute. “This was the first time you forgot since we got married?”

He looked embarrassed. “No. I miss the chance to say the short obligatory prayer maybe once a week. But the other two times I didn’t feel comfortable saying the long one in our house. Tonight I felt I had to, for some reason.”

“Dhoru, I don’t want you to be uncomfortable to say your prayer in your own house. And I want to know about these prayers, please! I think Bahá’u’lláh must be the great widu you think He was. Otherwise your family would not be as wise and good as it is. I want to be wise and good, too! So please tell me.”

“Alright, I will.” He came over to her with his prayer book and opened it to the obligatory prayers. “Maybe we should translate the short prayer into Eryani. Here it is in English.” He pointed and read it out loud. “I bear witness, O my God, that Thou hast created me to know Thee and to worship Thee. I testify, at this moment, to my powerlessness and to Thy might, to my poverty and to Thy wealth. There is none other God but Thee, the help in peril, the self subsisting.”

She listened to the English—strange English, to her ear. Then she pointed. “Thou? Thy?”

“Tu and tui in Eryani. English used to have the word, too, but about five hundred years ago it dropped out of common speech.”

“I see.” She looked at the text of the prayer, then read the entire thing aloud in English. She asked about some words and he translated them. She nodded. “A wise prayer, for it testifies to the all-power of Esto. You say it every day?”

He nodded.

“Then I will, too. I want to accept Bahá’u’lláh, Thornton. But you and your family have made it very difficult! You say nothing!”

“We do not want to push our beliefs on anyone. This is a very different world. We want to start slowly, learn about the people here, and serve them. Our religion is important to us, but it can wait.”

“No it cannot! For it is what makes the other contributions possible. You cannot separate them.”

“I think you are right!”

She shook her head. “Kwétɛru has the same problem, you know. The other day he said to me ‘Lébé, I want to learn about their religion, but they won’t tell me! What do you know?’ And I said that Bahu was a very saintly man who dedicated his whole life to helping others, and suffered terribly for it. He was in prison. That’s right, isn’t it?”

“Yes, it is.”

“Good. And then he said, ‘I’ll have to look on Thornton’s computer again.’ And I guess he found some Bahá'í scriptures; he told me he was trying to read it. He asked me what ‘Thou’ and ‘Thee’ meant.”

Thornton was surprised; Kwétɛru’s grasp of English was still poor. “Now you can tell him!”

“I will. I think he wants to accept Bahá’u’lláh, too.”

“Then he can ask us questions, and I’ll answer them.”

“Good! Maybe tomorrow we can invite him over for tea?”

“Alright,” agreed Thornton, wondering what his father would say. He would have to teach Lébé everything; clearly she wanted to know about Bahá’u’lláh’s laws and principles. The time had come to answer her questions. It made him love her even more.

The next morning they ate breakfast before heading for the fields. Mary was sitting in her chair in the courtyard, looking tired. Thornton kissed her. “Good morning grandma.”

“Good morning, dear. How are you today?”

“Fine. Did you sleep well?”

She didn’t answer right away. “I suppose.”

“Are you alright?”

“I’m as well as I can be, I guess. I’m down to one quarter of my daily heart medicine dosage, and I can feel the difference, I assure you.”

He put his arm on her shoulder. “There’s nothing Lua can do?”

“We’re working on it. She takes me on a walk every evening to strengthen my heart. Maybe I’ll get up to the top of the gluba, some day.” She smiled.

"I hope so."

"Meanwhile, dear, could you help me get to the table? I'm pretty stiff in the morning." She got up from the chair and he steadied her as she walked to the table. "How's Lébé, today?"

"She's well. She saw me saying my long obligatory prayer last night, and she wants to learn the prayers and say them herself."

Mary's face lit up. "How marvelous! We should let Lébé do the teaching; she's a native."

"Half."

"Half Eryanɛ, but all native."

Soon others joined them for a fast breakfast. There was no coffee; the bit that was left was brought out for special occasions only. But the area had various leaves that made decent tea, and they had a new jug of honey from the market at Mɛddoakwés. The fruits were mostly gone by, but apples would soon be available in the mountains, and nuts were beginning to bear. They had tomatoes every morning, lots of vegetables, and bread. Liz had made a few pots of jam which were mostly finished, but they were a nice treat.

Thornton rose from the table first and headed out, into the enclosure. Two more houses were going up; it was averaging one a week. The enclosure was now a quarter built up. The future site of the school had been enclosed by a wall; the interior, however, was a clay pit on one side and an animal enclosure on the other. A group of men and women had gathered in the garden area, waiting for Chris to come out and hire them for the day's harvest. Mitru was there as well, and when he saw Thornton he came over.

"Good morning."

“Good morning, Mitru.”

“Do you think your dad can hire me today?”

Thornton shrugged. “Why not. But aren’t you busy at the forge?”

“I can be, but I’m sick of it.” Mitru looked around to see who might be listening. “Yimu won’t let me start up my own business; he wants me to be his apprentice! He can hire a dozen kids for that, but I’m a married man and I need to support my family! I want my own area in the forge, my own product.”

“I can see that.” Thornton looked at his friend. “You realize how mad Yimu will be with you?”

“I don’t care! The whole forge is pretty screwed up. Yimu goes around and tells everyone what to do, then father shows up, gets mad, and tells everyone to do something else. He’s got the right idea.” Mitru pointed to smoke rising from one house near the tower. One of the soldiers had opened a blacksmith shop.

“But he’s not family. You are.”

“I know.” Mitru said it with some bitterness.

Thornton put his hand on Mitru’s shoulder. “I’m sorry, my friend. I wish I could help you. Maybe we can go for a walk along the river tonight after work.”

“Will you ask your dad to hire me?”

“Yes, I’ll do that right now. But can you go talk to Yimu about the situation? Because he’ll scream and yell at you tonight, and he’ll be mad at us. Why don’t you go talk to him right now?”

“I can’t talk to him!”

“You’ll have to tonight.”

Mitru thought about it. “Okay, I’ll try, right now, if I’m sure your dad can hire me.”

“He’ll hire you one day only so you guys can cool off.”

Thornton went to talk to his father; Mitru went, reluctantly, to talk to Yimu. He joined them in the field shortly to help with the corn. Yimu must have given him an ear-full.

It was a long, tiring day. Everyone worked with a minimum of clothing; Éra’s sun seemed to put out very little ultraviolet light and at the end of the day one barely had a tan. Thornton and Mitru were exhausted, but they did have the energy to walk up the side of the gluba and sit on a rock overlooking the reservoir. The area covered by muddy brown water had shrunk a lot, but there was plenty of water if it rained in the mountains soon, which appeared very likely.

They sat staring at the water. “You’re so lucky,” Mitru finally said.

Thornton looked at him, not wanting to interrupt.

“I mean, you and your father get along so well. I still can’t believe it. I watch the two of you talk and wonder how it’s possible. It makes me wish we were on Gɛdhéma.”

“Families on Gɛdhéma are just like families here. Some are close; some are not.”

“Oh. Well, I can dream, can’t I? Anyway, you’re close to your dad. You’re close to your sisters, which is very unusual here. You’re close to your brothers in law. And now you’re close to your wife! Esto has blessed you! I can’t believe it.” He shook his head.

“Who are you close to?”

“Mom.”

“Your mother is a saint, she really is. Everyone likes her. She is your family’s blessing.”

“That’s true.” Mitru’s face was becoming contorted; he was almost ready to cry. “But Thornton, I don’t have any brothers I can talk to! And Diné and I. . . we can tolerate each other for about an hour, and then we fight. She’s so unhappy here. She likes my mother, of course, but she misses her mother and sisters, she misses Morituora, she misses everything, she doesn’t seem to like me, and now she’s pregnant. So she gets angry very quickly, usually at me. I. . . I’ve thought of leaving and joining the army.”

“That would be pretty drastic.”

“It would. I keep thinking how I would be better off stationed as a soldier at the Kostɛkhéma Pass, out in the middle of nowhere; at least I wouldn’t be here. I just don’t know what to do.”

“How can I help?”

“I don’t know.”

“Talking helps, doesn’t it?”

“Yes, but it’s not enough. You’re my only friend, Thornton.”

“I wish you could work with us. You know English and can read some; it would really help a lot if you could help Kwétɛru, because he knows no English.”

“I’ve tried helping him, but Kwétɛru and I do not get along well. Besides, writing is not my talent; using my hands is my talent. I wish I could work for Amos; we get along well, and he helps me talk to Yimu. Or I wish I could drive your rovers more. Your father has given me the job of going to Mɛddoakwés twice a week, Yimu doesn’t mind, and I love it.”

Thornton knew Amos had no need for Mitru's help; he had his eye on others to help him. "Maybe father can ask you to drive more. I'll ask him. You know, we're thinking of driving to Isurdhuna after the harvest is in, to take Eva home. Maybe you could go along."

"Where's Isurdhuna? In Kɛrda, right?"

"Yes. It's about six hundred dɛkɛnt from here. We're thinking of visiting the Volcano Island, Ora, and Néfa on our way there. We'll take both rovers and do the trip in about ten days."

Mitru's eyes grew big. "I would love to go! I need to get away, and I'd love to see those cities!"

"I can ask father. But Mitru, a temporary escape is no solution to your problems."

"I know, but maybe it'll help me think of something."

"Maybe." Thornton thought. "Does Diné need something to do? I wonder whether Lua could use her help in the clinic as a nurse; or maybe mom could use her help in the kitchen, and could teach her things."

"They can ask her. I think that would be good; it would take her mind off of Morituora."

"Okay, I'll ask mom."

The next day was the day for Wɛrétrakɛstɛr's class. Lébé and Thornton were given a ride to Mɛddoakwés by Mitru shortly after dawn.

That day Thornton gave Lébe half the morning class, partly to encourage her, partly to break down the other students' stereotypes. She had prepared a list of known

Eryan poets, some forty names in all, in chronological order. The chart sparked quite a debate because no one was sure when some of the figures lived, and Wɛrétrakɛstɛr even expressed doubt that one poet had lived at all. In order to prepare the list she had also prepared a list of known monarchs before Duktɛrésto, a list that itself was controversial because of several mysterious royal deaths. At the end of the session Wɛrétrakɛstɛr promised to go through his notes of his teacher's lectures to see whether he could determine a few ambiguous successions and the lengths of four reigns. But Lébé did quite well for herself, and she had a self-confidence that boded well for future presentations.

Then Kwétɛru spoke the rest of the morning about his dictionary project, passing out ten pages of the letter "B" for discussion. Students began pouring out words he should include—some of which went later in the dictionary, since they did not completely understand the concept of alphabetization—and critiquing the definitions he offered, in several cases making important corrections. Wɛrétrakɛstɛr sat back and listened, occasionally offering comments of his own, pleased by the discussions; they were highly cooperative, and the idea of a dictionary was brought alive by it.

Over lunch, Thornton sat with the seer briefly. "Honored Wɛrétrakɛstɛr, perhaps you heard of the daughter of the gɛdhémé whom we brought to Mɛlwika recently. She had walked from Isurdhuna to find us, to bring her mother's greetings, and she almost died from the exertions."

He was surprised. "No, I did not hear about her! What wisdom does her mother have?"

“I don’t know. Her mother, Isabella, is about 75 years old. I think once our harvest is finished—in about three weeks—we’ll drive to Isurdhuna to meet her. Then I will be able to tell you.”

“Fascinating. The gɛdhémɛs have a reputation for being innovative and dangerous. I am amazed I have never heard about her, even when I visit Isurdhuna.”

“She lives in a village near the city. She is an old woman who arrived when she was very young, so she knows little, but she has tried to be very kind to us, so we must return her daughter to her safely. But we also want to see some of Éra. We’ll drive from here to the Volcano Island, then to Ora, Néfa, and Isurdhuna. We’ll stay about two days at each city. Coming home, we’ll drive via Bɛllɛdha and see it.”

“A beautiful place; it has two white cliffs northeast and northwest of it, and a gluba discharging the Mɛgdontakwés between.”

“Oh of course! *Bɛl lɛdha*!” said Thornton, realizing the name meant “white rock.”

“Yes.” Wɛrétrakɛstɛr used the English word, which had become fashionable in the class. “The entire town is built from the white rock, too; the city walls, the towers, the houses. It’s quite pretty.”

“Then we will enjoy seeing it. Wɛrétrakɛstɛr, we are planning our trip and would like your advice about people to meet, places to see, and things to do. We want to understand this world in order to serve it. What ideas can you give?”

“It sounds like I have three weeks to offer ideas.” He thought for a moment. “In Isurdhuna you must see the sites associated with the life of Widumaj. And if you are lucky, maybe you can meet Gawéstu, or Jawéstü as they call him there. How can I describe him?” Wɛrétrakɛstɛr’s eyes sparkled as he thought about the man. “He’s the

greatest widu on Éra today, without doubt. No one is like him. I am called a widu, and I do commune with Esto, and Esto guides me; I feel it. But I also live in a nice house and seek guidance that is also rational. And I seek to use my gifts to serve and guide the Queen. But Gawéstu: he is a *saktu,* a holy man. He relies on Esto only. He lives in a cave outside Isurdhuna, not in a house. He wears little, and has been known to remove it if a naked man comes to him for help. He will pray and fast for days and days sometimes, then utter a prophecy that amazes all. Two years ago he warned of a plague coming to Ora for its sins of wealth, and the plague then struck. He is an uncanny judge of character, too. A remarkable person; perhaps the most remarkable person in the world."

"Then we should seek him," agreed Thornton. "Who else?"

"I assume you will take Kwétɛru? He can help you with the Sumis."

"Yes, and I thought I'd ask Mithruilubu, too, since he's from Ora."

"Yes, a good plan. Yesterday he and I reviewed the subjects he has studied with me. If you want to hire him for your school, I can give him permissions to teach astrology, herbs, hymns of Widumaj, and Eryan poetry. He is a bright and capable man. I have felt sorry that he could not open a school here in Mɛddoakwés."

"Maybe after the trip, when we see how he works with us," said Thornton. "While Lébé, Kwétɛru, and I are away, my sister May has offered to come to your class. She can tell you about the languages spoken on Earth and their relationship to Eryani. Perhaps she could come with me next week, or the week after, so you can meet her."

The widu thought for a moment, then nodded. "I must meet her first. Yes, she can come to one class. And I will think more about who you should meet. I can write letters

of introduction. You might want to ask Roktɛkɛstɛr to do the same; he is known all over the world."

"Thank you, I will speak to him."

A week later the family discussed the matter one last time over dinner. "It would seem that we're going, right?" said Chris, looking at the others. "We're accumulating a huge number of letters of introduction, so I think we have to go now! And the plans are taking shape well."

"Pɛrku and I will have a pretty good map ready in a few more days," added Amos. "We'll see how good his geographical sense is."

"I've completed one battery, and can assemble a second one next week," added Behruz. "We'll have power after you go."

"And the harvest is going very well," concluded Chris. "It would be good if we could plant some winter wheat, but everyone says that can wait until our return." He turned to Eva. "So, I guess we'll be going in about ten days."

She smiled. "You can't know how grateful I am! Or how grateful mother will be to meet you! We will be in your debt forever!"

"We will be honored and delighted," replied Chris, with a smile.

"I wish I could help here more," said Eva. "Perhaps I should come and help you with the harvest. I'm good at threshing."

"Are you sure you're ready?" asked Lua.

"Ready? I feel better now than I have in ten years! You've done more than cured me; you've restored me!"

“Eliminating the worms helped a lot,” agreed Lua. “And if you watch your diet, eating a lot of fruits and vegetables—even when they’re scarce—you should feel a lot better.”

“I wish you could examine mother. She has the same problems, I’m sure.”

“I can’t go. But I’ll show both you and Lébé what to look for, and you can talk to me.”

“If the cellular phones work over that much distance,” said Thornton. “But Philos says they will.”

“But we won’t have the medicine.”

“I’ll put together a little box of medicines for the trip.”

“This will be quite an adventure,” said Chris. “I think we need to pray together for it on the first day of the week.”

27.

Sumilara

The afternoon before departure, they packed the two land rovers very thoroughly. Nine were going on the trip; Chris, Amos, Thornton, Lébé, Mitru, Kwétɛru of Anartu, Mitruiluku of Ora, Sarésunu of Néfa, and Eva of Isurdhuna. Mitru was the last addition and it had taken Chris two days of patient persuasion before Miller agreed; he was sure the Menneas' influence would make Mitru's problems worse, not better. It was good to have a fourth driver; he was perhaps the most excited member of the entire team.

The Mennea family had arrived with extensive camping equipment; three tents, white gas stoves and lanterns, sleeping bags, foam mattresses, blankets. The white gas was long gone, but Behruz had been able to make a crude substitute that worked for the lamp; they would cook using a campfire. Amos made sure he brought along the rock hammer he had had the aliens make for him, as well as plenty of bags for rocks and lots of notebooks made from spare paper. He was prepared to study the world's geology. He also had all their tools, to maximize the chance they could repair a broken-down rover. They had rope so that one could tow the other one home.

Thornton brought all his gadgets; his computer, printer, plenty of paper and ink cartridges, his microphone, and the digital camera his parents had bought for him as a holiday present. Since he could load the pictures onto his computer, print them in color with the inkjet printer, and then store them on the website offworld, he was inclined to take lots of pictures, especially to help Amos with his geology. No doubt he would be busy every night printing and storing pictures.

Eva came with her few personal effects. Lébé contemplated having to cook and wash for all of them, with help from Eva and some from Thornton and Amos. Kwétɛru had already started working on a Sumi/Eryani dictionary, using his Eryani dictionary as a base; his Sumi was quite rusty and he was looking forward to improving it. Mitruiluku was happy about going home, for he hadn't seen Ora in five years. Sarésunu saw the trip as his first chance to get away from home and see the world, but also his chance to learn a lot more about geology, a subject he had come to be fascinated by.

They left an hour after sunrise. They actually had to keep their speed down, because the rovers could easily drive west faster than the sun rose in the sky. Keeping their speed down were various chores they agreed to do as they went: photographing villages; keeping a road log of every place they passed through and every significant change in direction; and at least every hour, stopping to take a sextant sighting on Skanda, to determine their latitude and longitude. The latter stop would also be a chance to make a geological examination; indeed, the geology usually determined the stop, not the need to use a sextant.

They drove past Nénaslua, Béranagras, Boléripludha, and Morituora, all familiar places, but at each they took pictures as they drove slowly through and Thornton recorded observations afterward; the four villages could serve as a baseline for other observations later. They noted that even though the villages all had side alleys, the larger the population, the longer the string of houses along the road; that gave them a very approximate way of measuring population.

After passing Mɛddoakwés they followed the Royal Road to the southeast. The countryside past the capital city was noticeably greener than when they drove to get

limestone; the extra water from the Mɛlwika reservoir allowed the villages to use more. In many places peasants were tilling to plant a third crop of winter wheat. When the rovers drove through villages they received a few stares, but less shock than several months before; everyone had heard about rovers by now. With Lébé's help and Amos calling out odometer readings, they recorded information about every village they saw.

An hour after leaving home they made their first fifteen-minute geology stop where the road dropped to the floodplain along the Arjakwés from the rolling plain above. The slope was not steep, but they could see rock outcrops, so they stopped to look. While Amos and Sarésunu whacked at the rocks—they proved quite ordinary—Thornton took a latitude and longitude measurement. For the next half hour he ran a calculation on the road log—so many kilometers in such and such a compass direction—to see whether it produced the same latitude and longitude as the sextant. The results were close, at least, and Amos gave Thornton tips for the next half hour or so.

The next stop was at the ruins of the city they had seen when they had gone to get limestone. They stayed half an hour to take photos and to show Kwétɛru the Sumi writing. Fearing spirits, Sarésunu and Mitruiluku busied themselves with the geology of the area, and the rovers had to honk their horns to get them back.

Akanakvéi was fifteen minutes further down the road; again they slowed to take pictures. The road was quite rough where it broke through the old limestone reef and one rover got a flat tire, requiring an unexpected fifteen minute stop to mount a spare. They had two, and the ability to repair them.

Beyond Akanakvéi and its oasis was a salt desert of scattered, hardy brush and tufts of grass; the old seabed had not been exposed to rain long enough to lose all its

saltiness. When they came to a small rise they stopped to do some quick geology; an old basalt flow covered with marine mud dried into a hard, black clay layer and topped by ancient beach sand. Chris put a bit of soil on his tongue and noted he could still taste salt in it.

The road bent toward due west and in five minutes water appeared. They stopped to taste again; very salty, but not so salty that it was lifeless. Chris guessed it was two to three times as salty as the earth's seas. They could see seagulls wheeling overhead, and occasional fish skeletons were washed up on the shore. The waves seemed to be breaking on new coral reefs offshore.

In half an hour they came to a dry riverbed flowing in from the north. A village was situated on its banks. The natives were quite startled to see the rovers and fled into their houses; they decided not to stop. Dozens of leather boats pulled up on the sand showed it was a fishing settlement. The village also had lots of goats and cattle—their dung was the chief evidence—but no wheat or vegetable fields. The ground was still too salty for agriculture. Fresh water was scarce as well, pits dug in the dry riverbed being their sole source.

As they were driving out of the eastern side of the village, Kwétɛru pointed to a large group of clouds on the southeastern horizon.

"That's the volcano," he said.

Thornton squinted. "They're just clouds."

"But they're over the volcano. There are always clouds there."

Thornton nodded and made a note in the log. Within half an hour, when the road went up a slight rise, turned southwest, and suddenly left the shoreline behind, it was obvious Kwétɛru was right.

"Let's stop," said Saresunu. "There's geology here."

"And it's time for another measurement," added Thornton.

They stopped, and the other rover in front of them soon stopped and backed up as well. Since they were roughly keeping even with the sun it was still the cool of the early morning. Everyone got out. Thornton measured Skanda, which was getting rather close to the zenith. The others followed Amos and Sarésunu. Chris pointed at a whitish patch. "I don't even have to taste the soil to know it's salty."

"The next leg is the saltiest salt desert," agreed Eva. "The salt lake we've been following is not the saltiest; the one south of the Volcano is dead, it is so salty."

"How did you ever survive walking through here?" asked Chris.

"I left the Volcano Island's northeastern village at sunset and walked all night. I reached Lilamana—the village we passed half an hour ago—about dawn. It was a very long, tiring, frightening walk, but at night it was cool."

Chris nodded. "And you rested there?"

"Yes, I slept all day. The people were very, very kind; an old woman let me sleep in her bed. They gave me fish and water. Then I walked to Akanakvéi the next night."

"Weren't you afraid of thieves?"

"What would they take from me?" Eva replied with a smile.

Amos and Sarésunu were walking back to the rover from the rock outcrop they had been examining. "What did you find?" asked Chris.

“The usual,” replied Amos. “Ever since we left Mɛlwika all we’ve seen is black basalt, which is basically old lava flows, covered with sedimentary rocks of different types. Here the basalt is covered with two meters of fine, black marine clay, full of little shells.”

“Interesting. Sea bottom. Thornton, you’ve got our position?”

“Yes, we’re at 10 degrees south and 22 degrees east. It looks to me that the volcano is at zero-zero.”

“What does that mean?” asked Eva.

“That if you stood on the top of the volcano, Skanda would be directly overhead,” replied Chris. “Let’s go.”

They got back into their rovers and drove on. The land did indeed become more barren. Chris knew desert vegetation well and which species could tolerate salt; everything he could recognize, driving at thirty kilometers per hour down the dirt track, was of that sort. White patches in low spots verified his observation.

They passed a group of scraggly men who stood and stared as they rode past, then fled from the road. Probably a group of thieves. A dozen kilometers farther down the road the desert vegetation ended abruptly; they reached an area periodically inundated by the dead salt lake. The road rose above the water level on a viaduct, built of material excavated from ditches on both sides.

“The engineers have been at work, here,” noted Thornton.

“This is here to ensure the road stays open to traffic,” said Mitruiluku. “The road was being flooded several months every year.”

“It’s to ensure control of the island, too,” added Kwétɛru.

“This is Sumi land, isn’t it?” said Lébé.

“The Sumi heartland; our last land, really,” replied Kwétɛru. “Once, the entire lowlands were ours, and the island was central. Now the lowlands are Eryan and the island is all we have left.”

“Fortunately,” added Mitruiluku. “No offense, Kwétɛru.”

“And your aunt and uncle live in Anartu?” asked Thornton.

“Yes. My uncle is the hereditary prince of Sumilara, the land of the Sumis. He’s royal blood; he’d be king now if the Sumis had kings. My father was the second son; my uncle was the first. So my father went to live in Mɛddoakwés, as he had no official job. How can I describe his function in Mɛddoakwés? A cross between official ambassador and official hostage. My older brother is his successor, so I have nothing.”

“Or perhaps you have more options,” said Thornton.

“With your family, yes. Not otherwise. On Éra the rule is simple; the oldest son gets everything, so all other sons get nothing.”

“I know. Almost all of Wɛrétrakɛstɛr’s students are second and third sons.”

“I’m a second son,” agreed Mitruiluku. “My older brother will be the Lord of Ora some day, unless he dies.”

“So, how big is this Volcano Island?” asked Thornton. “Is it really an island?”

“Not any more; the sea has broken into three salt lakes. There are huge salt flats like this.” Kwétɛru pointed at the whitish wasteland around them. “The island is maybe one hundred dɛkɛnt east-west and eighty north-south. On the southern side there is a wide lowland, then the land rises to a rolling area we call ‘the plateau.’ Above the plateau is a

ridge that runs east-west with a series of high peaks in the center. The higher you go, the more rainfall. The top is covered by thick, thick forests."

"Does the volcano ever erupt?"

"Yes, every ten or fifteen years, usually somewhere along the ridge, and when it does it burns part of the forest, but the forest grows back."

"And they refuse to learn Eryani," said Mitruiluku. "It's sad. They are an unreliable people, prone to lying and cheating, very untrustworthy. Well, except Kwétɛru."

Kwétɛru was becoming angry. Thornton shook his head. "Mitruiluku, conquerors always say that about the conquered. The conquered have no other ways to resist, to fight back, but to limit their cooperation with the conquerors."

"Perhaps. But Widumaj agreed; he condemned the Sumis many times."

"Not many times," replied Kwétɛru. "Just in the hymn."

"But it condemns them many times! `Woe betide those who imitate the Sumis. . .'"

"That's right, who *imitate,*" said Thornton. "The hymn is often called `The Hymn Against the Sumis' but it really is `The Hymn Against Sumi Things.' And what are the Sumi things the hymn condemns, Mitruiliku?"

"I haven't thought about it," he growled.

"Prideful kingship is the first. Violence against the innocent, especially women and children. Injustice in enforcing the laws. Excessive ambition and wealth. A lack of compassion for the poor and less fortunate. Capricious use of force. There are a few others, too. In short, the old Sumi kings and their rule are condemned. Wɛrétrakɛstɛr

suggested to me once that Widumaj wanted to call the great Eryanɛ king of his day to account for his deeds, and the safe way to do it was to condemn the old Sumi rulers, who exploited and terrorized the Eryanɛ hill villages and tribes."

"Perhaps. But the hymn also condemns their dishonesty and laziness."

"But the verse on laziness talks about them being lazy because they're rich. The verse really condemns all rich people who sit back and do nothing to help others," said Lébé.

"And the verse that mentions dishonesty talks about rich merchants," added Kwétɛru. "We should call it the 'Hymn Condemning Sumi Things.' Or perhaps even 'The Hymn Condemning Sumi Excesses.'"

"Or perhaps 'The Hymn Condemning Excesses,'" agreed Thornton.

"I do think it mentions Sumis!" exclaimed Mitruiluku.

"But it's not focused on the Sumis," said Thornton. "And the traits it condemns are traits the Eryanɛ now possess more than they, because the Eryanɛ have the power."

"I get the point!"

It was clear that Mitruiluku could not be pushed further, so Thornton turned to Kwétɛru. "How big is the population of Sumilara?"

"No one knows, I suppose. Anartu has maybe six thousand people. The entire island must have eight or ten times that much."

"Then a substantial portion of Éra's population is Sumi," said Thornton.

The salt flat ended abruptly ahead of them with a line of vegetation. When the road reached the vegetation they saw some grass and brush capable of tolerating salt. But the land looked noticeably lusher than before.

And the road began to rise noticeably; not steeply, but perhaps twenty meters every kilometer. In a few kilometers there was grass and the land looked green. In a few kilometers more there were palm trees and scattered tufts of grass. The transition was sharp; almost shocking. “Volcano Island has never had a drought,” said Kwétɛru. “We get rain all year round, especially in the winter, though it is not much at this altitude.”

They drove on, the road slowly rising, the volcanic ridge taller and taller in front of them, though now trees often obstructed it. The road came to a creek and they slowed to drive across carefully. A large Sumi village stood on the other side. They drove past; the dark skinned inhabitants stared.

They went past a little hill and stopped for geology. Thornton measured Skanda; part of it was overhead now, though the southeast edge wasn’t. He measured the height of the peak, to the extent he could guess it in the clouds; it was five degrees above the horizon.

The hill was the edge of a basalt flow that appeared to be just a few thousand years old. They tarried while Sarésunu and Amos explored for a while. Then they resumed their trip.

They passed through three more villages; twice right through their hearts, in spite of stares. In between the villages the land was farmed with some sort of grain like wheat, and there were rice paddies along the rivers. Then finally the walls of Anartu itself appeared before them. They had driven 156 kilometers in 5 hours and had crossed five time zones, so it was still just an hour after sunrise.

Chris parked the rovers about fifty meters from the gate. He, Mitru, and Kwétɛru headed to the gate to talk to the guards, loaded with their letters of introduction. The

conversation lasted half an hour before they could enter. Meanwhile, a large crowd gathered around the rovers. Amos sat at the wheel of one and Thornton at the wheel of the other, in case there was trouble, while Lébé, Mitruiluku, Eva, and Sarésunu spoke to the crowd. Soon the people were clustering close, feeling the metal and marveling.

Chris and the others soon hurried back. “We’ve rented a deep stall at the caravanserai just inside the gate. We can back both vehicles into it easily, and there will be plenty of room for the rest of us to sleep in the straw beyond.”

“We can go in?” asked Thornton.

“Of course. I wish we could stay at a caravanserai outside the walls; it would guarantee our departure. But this way we’re safe from thieves.” Chris climbed into the passenger side and the others followed his example. Thornton started the engine and moved them forward slowly, amazing the crowd.

He drove through the gate slowly; there was a crowd there, too. Mitru and Kwétɛru stood in an empty stall in the building on the right side of the square. It reminded him of the caravanserai near Mɛddoakwés’ south gate: a series of twelve archways, each three or four meters wide, opening onto arched rooms of the same width and about six meters deep. Each could hold a half dozen camels or horses, their loads, and the people who tend them. The opening could be blocked with a chest-high wall or gate; in the winter the Mɛddoakwés caravanserai added a canvas cover, to keep in the body heat of the animals and their human tenders.

Thornton backed the rover in very carefully; Amos followed with the other. Kwétɛru moved the chest-high gate across the opening behind them. It was like being in their own cave. Quite a crowd gathered at the mouth to stare in.

“There’s fresh horse manure under the straw,” observed Chris, when he looked at the dark, empty back of their enclosure. “Do you think we can get them to come and remove it?”

“If we pay,” replied Kwétɛru.

“Let’s do that. Okay everyone, listen up. I want two people here at all times, and one must be me, Amos, Thornton, or Mitru. Kwétɛru and I are going to his uncle and aunt’s house right away. Who’s staying?”

“I’ll keep the first shift,” said Thornton. “But I want to be able to walk around the city this afternoon.”

“Good; I want to shop now,” said Amos.

“Be careful,” said Chris. He turned and beckoned to Kwétɛru. They went to find the caravanserai owner, who was quick to agree to a thorough cleaning of the back of the stall.

That done, he and Kwétɛru left for the residence of the prince. They walked down the main street, which was incredibly impressive; it was lined by columns on both sides all the way to the central square, shading businesses, which looked prosperous. At the central market a large fountain bubbled; an impressive arch stood in the center like a monument to some ancient victory; a huge temple to Saré/Kié bounded one side, and the government palace stood opposite it. The city, though a bit smaller than Mɛddoakwés, was much grander. It reminded Chris a bit of ancient Rome.

They walked down a large side street into the town’s aristocratic neighborhood and came to a wooden double door. Kwétɛru knocked and a moment later a servant answered. He stared a moment, then his eyes lit up.

“Master Rébu! It’s amazing to see you! We didn’t know you were coming!” The servant was Sumi but had a high-pitched voice, like a woman’s; a eunuch.

“Greetings, Lilar! I hope uncle is well?”

“Oh yes, very, very well! Come in, come in!”

“Thank you. This is my friend Kristoféru.”

“Kristoféru. . . “ The servant pronounced the name very carefully.

“Yes, I am traveling with him, some members of his family, and a few friends,” continued Kwétɛru. “We just arrived from Mɛddoakwés—”

“Just arrived? You should have come last night, when we could have given you supper and some comfort. You must be exhausted!”

“No. We traveled in the horseless wagons; did you hear about them?”

“There was a man who came here to tell Lord Gilran about some strange carriages. You came in them?”

“Yes, we will tell you about them later. Now we want to visit with Lord Gilran.”

“Certainly. I will announce you.” The servant closed the door behind them and walked across the court to a door beyond. The courtyard was large and beautiful, with potted tropical plants growing around the edges and several citrus trees in corners. Most of the courtyard was covered with a rich mosaic; in the center was a large, shallow tiled pool filled with multicolored goldfish. A second courtyard opened into the first, separated from it by a line of columns. It was covered by a grape arbor; cool and pleasant.

They didn’t have to wait long before a man in his late fifties appeared, wearing a white robe and followed by several servants. Kwétɛru smiled. “Uncle!”

“Rébu!” His uncle came to him and embraced him. “What a surprise, what a surprise! How are your father and mother?”

“Very, very well. They send their greetings.”

“Excellent. Please carry my greetings to them as well. And who is your friend?”

“Kristoféru, master of the Mɛlwika Génadɛma.”

“The Mɛlwika Génadɛma? I’m afraid I have never heard of Mɛlwika or of a génadɛma. Nor have I heard the name Kristoféru before. What an interesting mystery.”

“I am a mystery, Lord Gilran, for I am a gɛdhému.”

“A gɛdhému?” Gilran was startled. “Pardon me, but I have never met a gɛdhému before!”

“And we arrived in the carriages without horses,” added Chris. “I think you heard of them?”

“A man came with a strange report, just a short time ago. I dismissed it. What good is a carriage without a horse?”

“These carriages *move* without horses,” replied Kwétɛru. “They have a place where there is a fire within; the fire makes it move.”

“It moves without horses, but by fire? I’m afraid I cannot imagine it,” said Gilran. “Come, let us sit and eat breakfast. You must be tired from your journey.” He pointed toward the courtyard with the grape arbor. They walked under it and sat on a carpet around a low table. “How long will you stay?”

“Today and tomorrow only,” replied Chris. “We must get to Isurdhuna. We are bringing an older woman home there. She is the daughter of a gɛdhémé and walked to Mɛlwika, where we live. She nearly died.”

“I’m sorry, where is Mɛlwika?” asked Gilran.

“Thirty dɛkɛnt east and a bit north of Mɛddoakwés,” replied Kwétɛru.

“She walked there from Isurdhuna, and you are taking her back,” repeated Gilran. “Such hospitality and generosity is seldom seen now-a-days.”

“Horseless carriages have some important advantages over carriages with horses,” replied Kwétɛru, taking an orange from the bowl on the table. “They can go at the speed of a galloping horse and they never tire. Can you imagine how quickly you could get to Mɛddoakwés if the horse kept galloping and never stopped?”

“I think my ass would be so sore, I couldn’t walk for days. But yes, I could get there in maybe a day.”

“Uncle, we got here from twenty dɛkɛnt beyond Mɛddoakwés in less than half a day.”

Gilran stared at him. “May the gods be praised.” It was not clear whether the remark indicated he believed his nephew or not.

“We must show you these carriages,” said Kwétɛru.

“I must see them.” Gilran bit off a piece of bread and looked at his nephew, trying to understand the situation.

“Your oranges are excellent,” said Chris, offering the only compliment he could think of.

“Thank you. Sumilara has the best. So I now know what Mɛlwika is; what is a *génadɛma*?”

“A ‘place of knowledge’ just as the word says,” replied Chris. “On Gɛdhéma we have places like them. They exist to provide the highest quality training that is possible.

They have many permanent teachers who write books as well as teach. The students usually stay four years, but some stay six or even eight in order to learn more. I suppose you could say their primary purpose is to advance civilization and serve humanity by generating new knowledge."

"They sound like excellent institutions," said Gilran. "We have smaller schools for training here. Rébu, you were in such a school in Mɛddoakwés, were you not?"

"Yes, the school of Honored Wɛrétrakɛstɛr. I still attend his classes, but also work in the Mɛlwika Génadɛma."

"I see."

Our génadɛma needs to know about Sumilara," said Chris. "Because the Sumi have a great civilization, and in the past their civilization was even greater. The Eryan civilization derived much from the Sumi."

Gilran leaned forward. "They took everything they have from us! This was a Sumi world! The Eryanɛ lived in the Great Valley and the surrounding hills. They were barbarians; we maintained order on this world and built up great cities. But the gods decreed otherwise. They took the world from us and gave it to them because of our pride."

"Pride?" asked Chris.

"Yes, our pride. We had responsibilities and we did not exercise them. So the gods gave the world to them."

"You still have this Volcano Island, and Anartu."

“We live here, but they rule. This is a royal city. I have a hereditary title, but the general commanding the garrison makes most of the decisions. He leaves the unimportant ones to me.”

“How long have the Eryanɛ ruled the Volcano Island?”

Gilran paused to think. “About two hundred eighty years. They had few ships and this was a real island, so we were safe even after they took our cities on the eastern and western shores. But every year the sea dropped lower and lower. Finally it was possible for the army to walk here, so they did. They conquered the lowlands and the plateau. They never really subdued the population that lives in the central forests.”

“Interesting. And when did the sea begin to drop?”

“Who knows? Perhaps a thousand years ago. I have the records.”

“Records?”

“Yes, the library of Ninurta the Great. It goes back over a thousand years.”

“You have a library?”

“Yes, of course.” He pointed. “It’s in that building, there. Not many go there now; very few can read the old writing. Everything is written in bark books or on clay tablets, which take up a lot of space and are heavy. Much of the library should be thrown away, I suppose; old tax records. But it also has the court correspondence and a few real books; the Three Classics, our library of great knowledge. It’s preserved there.”

Chris looked at the building, which was obviously old. He turned to Kwétɛru. “Perhaps that can be your next project,” he said.

“Perhaps,” said Kwétɛru.

“Were all the Sumi cities rich, like this?”

“Some of the others were richer. There were cities where Ora and Néfa are today; they were bigger than Anartu because they were surrounded by more farmland. Even Mɛddoakwés was a large Sumi city, once. And there’s Lilalara, at the mouth of the Arjakwés; it was huge.”

“We’ve seen the ruins. I had no idea anyone still remembered the name.”

Gilran laughed. “There’s a man here who is the hereditary Lord of Lilalara! The Eryanɛ have seven large cities, if you include Anartu. Five of them were Sumi; the only exceptions are Isurdhuna and Tripola. The Sumi had ten major cities in their confederation before the drought.”

“The drought ended it all,” said Kwétɛru.

“How many are in your party?” asked Lord Gilran.

“Nine, including us,” replied Chris.

“They must come for dinner.”

“We would be honored. And you must come see our vehicles.”

“I would be honored.”

28.

The Great Gluba

Their two days in Anartu were busy. Lord Gilran's ride in a rover through the city their first afternoon proved quite exciting for the entire population. That evening eight of the nine went to his house for dinner; Mitruiluku didn't want to go, so he was left with the vehicles to guard them, with instructions how to call Chris or Mɛlwika if there was trouble. But there was no trouble, fortunately, and quite a grand evening. Thornton audio recorded the entire event.

The next day Dontɛkɛstɛr, the general in charge of the garrison, wanted to meet with Chris. He was suspicious of all the fraternization with the Sumis. So after what could only be described as an interrogation he got his grand tour of town in a rover as well, and invited everyone for an equally grand dinner. Thornton recorded it, too; no one asked what the small box was that he carried in a bag with him all the time. Dontɛkɛstɛr, whose name meant "slayer of sabertooths," proved to be a pleasant enough man, but one with powerful prejudices against the Sumis. Mitruiluku felt vindicated; Kwétɛru remained behind to watch the vehicles.

Amos had plenty of time to shop, and much of the spare space in the rover was filled. He managed to purchase almost 100 pounds of rubber at the only price it was available, which was high. The material was a curiosity with no use other than making rubber balls and rubberizing cotton cloth to make it waterproof. The merchant, however, was able to purchase larger amounts, and agreed to get it for Amos at half the price of the

first purchase, but not for a month or two. Amos said he would come back to get it; that meant another visit.

The market also was filled with other interesting items. Many kinds of tropical fruits were cheap; they loaded up with citrus and other fruits that would keep. Nuts were readily available. There were spices unavailable in Mɛddoakwés, especially cinnamon and ginger; they bought lots of them. Particularly interesting was a light brown bark paper made by pulping the bark of a particular tropical tree and spreading the paste out to dry; it was used in the marketplace for receipts and records. In consequence a larger fraction of the population was literate than in Mɛddoakwés, though it was still a small number.

All around, Anartu appeared to be more prosperous than Mɛddoakwés. That made sense; the former was located in a tropical zone with good rainfall, while the latter was surrounded by semiarid lands that yielded little. Thornton took several hundred photographs so they would have plenty of information for comparison.

At dawn the next day—as soon as the gates were open—they left for Ora. In spite of the early hour, several hundred people gathered to watch them leave. They waved as they drove across the town from the western gate to the eastern gate, right through the main square, then out the other side. The road went over the Anar River on a beautiful but old bridge, then through several kilometers of rice paddies, drained for their second harvest. Beyond was open farmland and scattered Sumi villages; they were at a low enough altitude so that the rainfall was not high.

"Such beautiful land," said Kwétɛru.

"It really is; the most beautiful land on Éra, I think," said Thornton.

“And it’s all Esto left for us,” said Kwétɛru, shaking his head. “It’s very sad. If we hadn’t become prideful the world would still be ours.”

When Thornton didn’t reply Kwétɛru turned to him. He saw that Thornton was puzzled. “My uncle, Lord Gilran, said it; that the gods took the world from us because of our pride. And Widumaj basically said it too, in his hymn.”

“Yes, but there’s more to the story than that, Kwétɛru. We’re talking about a giant drought. This world’s entire sea dried up. That didn’t happen because of pride. There must be a scientific explanation.”

“What do you mean?”

Thornton suddenly realized he had plunged into a core set of assumptions on Éra. “Well, how can I say this? Hundreds of years ago if some area on Earth had a drought or a flood, everyone said it was because of their sins, so they prayed and fasted that God would forgive them. And eventually the rainfall went back to normal. Nowadays on Earth when there is a drought or flood, no one thinks it’s because of their sins, because we understand a lot about how the weather works. If there is a drought in one place, it is because there is too much heat in another place, and floods in another place. Some of those places are out in the middle of the sea, where there are no people to sin and cause the drought or the flood. So a few pray the rain starts or stops, and most do not pray at all; and eventually the rain goes back to normal anyway. So when you say the Sumi civilization fell because their sins caused a drought I have to say no, that’s not what happened. The Eryanɛ are sinning now, and the drought has not gotten better or worse; it’s about the same.”

Kwétɛru listened, frowning, because he had never thought that way before.

“But if God is as great as you believe he is, surely he can change the weather?” he finally asked.

“Yes, he can,” conceded Thornton.

“He got you there, Thor,” said Amos, who was listening from the driver’s seat.

“But there must be a natural explanation, too,” persisted Thornton. “For example, maybe the water in the sea has escaped into the heavens, never to return. If that is true, there must be a natural explanation *why* it escaped.”

“Kwétɛru, look at it this way,” said Amos. “The Eryanɛ took over this world, and the weather didn’t get better. Maybe this world is slowly drying up, and in a thousand years there will be no water left at all, and everyone will be dead. Virtue won’t stop the drying up; even virtuous people will be dead.”

“Never, never think one particular people is evil compared to another,” said Thornton. “We believe in the oneness of all people, and that means they are all from the same stock. If they are from the same stock, they are equally good or bad. Equally mixed.”

“There are good and bad Sumis, just like there are good and bad Eryanɛ,” added Amos. “But you are Sumi, so you should be proud of your people and what they have done, just like a child should be proud of his family, whether it has done a little or a lot.”

“Yes, I suppose you are right.”

Thornton glanced at Mitruiluku, who was staring out the window as if the conversation did not exist. “Kwétɛru, this is a great civilization,” said Thornton. “I am very impressed. Anartu is richer than Mɛddoakwés. It is more cultured. More people can

read and write. The architecture is grander. There are more items for sale in the market. It's quite a remarkable place."

"Of course, Ora is even more impressive," said Mitruiluku, still staring out the window. "It's as big as Mɛddoakwés, but older, richer, more beautiful, more prosperous. And it's built where the old Sumi city was removed quite neatly and thoroughly by a great flood, so well that only the hand of Esto can explain it."

Thornton turned to look at Mitruiluku. He finally looked up from the window. "The flood was a miracle from Esto; nothing else can explain it. The water was over one hundred *doli* deep, they say. Rainfall does not make floods like that."

"If the story is true, there is a natural explanation," replied Thornton.

"I'll believe it when you explain it to me," replied Mitruiluku, calmly.

Thornton couldn't argue with that, so he turned away. They drove on in silence.

In an hour the royal road descended back into salt desert, leaving greenery and villages behind. But the land was not as barren as before because there was higher rainfall, and therefore more of the salt had been washed from the soil. On Éra the prevailing winds usually blew out of the east; they were now west of the salt water bodies that Éra still had, and therefore on a land watered by more rainfall.

They made their usual stops to measure the position of Skanda—now low in the eastern sky—and to examine the geology. They made one extra stop to change a tire. Ora was only three hours' slow drive away. The approach was fairly dramatic because they came up along the river, a strong, swift-flowing current with rich agriculture along it for 15 or 20 kilometers. Ora suddenly reared up on a rocky hill overlooking the valley. It flowed down the slopes, from its citadel on top to the riverbank, a sea of red tiled roofs.

The city had several impressive monumental buildings. A quarry-like structure most of the way down the slope represented the old seaport.

They drove to the eastern gate and stopped while Chris and Mitruiluku went to speak to the guards. A half hour later they entered and drove to a caravanserai where they again occupied a large animal stall, just like at Anartu. Mitruiluku's father was hereditary Lord of Ora, but the value of the title was diminished because Ora was capital of the western shore, and therefore the customary residence of the crown prince, who also commanded the city garrison.

Thornton stayed at the rovers while Amos shopped, like before. About noon Amos returned, loaded with all sorts of items, while he and Lébé went out. They followed the main street up the hillside toward the castle on top, looking at shops and buildings as they went and discretely taking photographs. When they reached the top of the street there was a large square in front of the castle gate and a fantastic view of the city.

"So beautiful," said Lébé. "A very impressive city."

"Yes it is." Thornton pointed southwest, to a narrow cleft that cut through the rising land. "Look at the gluba! That's impressive too."

"That must be Glugluba, the Great Gluba," said Lébé. "I've heard of it; they say it's Éra's deepest, biggest gluba."

"I believe it. There's quite a river running out of it, too." Thornton scanned from the west to the south and suddenly realized that Ora was built at the edge of quite a large and impressive valley. The gluba, in contrast, was much narrower, but it was also much deeper. Could it be that a vast flood had poured from the gluba once and excavated the

valley before them? He'd have to ask Amos. Meanwhile, he took a panorama of shots to capture the entire scene in detail, west to south to east.

Then they started back down the hill. They turned off the main street down a wide side street, then found another street that more or less paralleled the main street and took it. It had some shops, but not as many.

An hour later they returned to the caravanserai. Chris and Mitruiluku had just returned from their visit to the Lord.

"It went well?" asked Thornton.

"Yes, eventually. I was just telling everyone. Mitruiluku's father was very suspicious at first, but the letters of introduction helped, and Mitruiluku spoke. Lord Mitru is in charge of the town right now because the Crown Prince is with his mother at Isurdhuna, so he feels particularly responsible. But once the Lord was sure we were alright he became very kind. He wants to feed all of us tonight."

"Of course," said Thornton.

They went to the palace that night. It was built next to the castle, which was the residence of the Crown Prince and, by all accounts, was even grander on the inside. Lord Mitru had invited the town's most prominent men. His sons were there also; Mitrusunu ("Mitru son") was the oldest, Mitruiluku ("the light of Mitru"), Mitrulubu ("Mitru loves"), and Mitrubbaru ("borne for Mitru"). He had taken advantage of the fact that he was named for one of the most important of the old gods to name all his sons after him and the god at once.

Once the town's grandees warmed up to the visitors, they asked question after question about Gɛdhéma and the life and customs there. Chris did all the talking, to keep the answers consistent. He spoke about the wars but the effort to spread the rule of law, an idea they understood, as it was an issue on Éra as well. He had to explain Earth's size again and again, for they could not grasp it. Skanda proved to be an excellent analogy, because anyone with good eyesight could see large storms, mountain ranges, deserts, and seas; they understood, with some explanation, that it was bigger than Éra. Amos spent half an hour explaining how Éra orbits Skanda and Skanda orbits its sun, ideas they accepted at the level of speculation.

The rovers raised issues of technology. Amos explained how the engines worked; he had had to give the explanation many times before and had developed a way that worked, using existing Eryani vocabulary. But when they asked how the rover had been made, they were dazzled by and a bit unbelieving about the idea of a huge building with twenty thousand or more people working, each specialized to perform one little task, all the resulting pieces fitting together perfectly. Where do the people get the light they need? Amos had to explain electrical lights, heating and cooling systems, three shifts, clocks, factory whistles, public transportation. The discussion went over an hour and they were fascinated but incredulous.

Then the time came for people to leave. Lord Mitru told Chris to wait until the end. They went through the farewell ritual—a bit lengthy—with each guest. Finally only Lord Mitru and his sons and the Mennea party were left. Lord Mitru uncorked the wine bottle. "It's a shame you don't drink; we make some of the kingdom's finest wine here." He poured himself another cup, then passed the bottle to his sons. He took a sip, then

turned to Chris. “We are proud of our civilization, our refinement, our society. We have achieved greatness here. But after tonight’s talk I have a vision of how much greater Gɛdhéma is. It is a shock.”

“On Gɛdhéma, two hundred years ago, one part of the world—Europe—developed our modern ways first, and used them to conquer the rest,” said Chris. “Some of the other areas of the world had ancient, ancient cultures. They saw themselves as very civilized and great. Some even remembered when the Europeans were barbarians, and saw themselves as superior to them. When they were conquered by Europe they were profoundly shocked. But eventually the other areas—some of them, at least—became as advanced and strong as Europe. I hope Éra can grow and become like Gɛdhéma in some ways, but not experience the sense of inferiority.”

“That may be impossible.” Lord Mitru became very serious. “The changes that you hint about could be profound. And dangerous to many, including you and your family.”

“We pray to Esto every day for wisdom.”

Mitru looked at him closely. “I am sure you do. Your génadɛma is the vehicle for the change.”

“It, and the forge. There are two types of change that are necessary, really. One is education; teaching people to read and write, and using reading to give people more knowledge. The second is practical training, and the forge provides some of that. We run the school and the Miller family runs the forge.”

“Miller; I’ve met him in Mɛddoakwés before.” Lord Mitru nodded. “And what can we do to bring some of the knowledge and training to Ora?”

Chris was surprised by the question. “I don’t know. I am unprepared to answer you.”

Lord Mitru stared at Chris, as if trying to probe his soul. “Let me explain something about Ora to you. There is a rivalry between Mɛddoakwés and Ora that has lasted over five hundred years. You see, Ora should be the capital of the kingdom, not Mɛddoakwés. Mɛddoakwés never used to be a place of any importance at all. It was never on the sea, when the sea was its old size. It has never had a huge population around it. Ora, on the other hand, has a pleasant climate, reasonably reliable rain, and many, many villages to the north and south of it, between the salt desert and the Snow Mountains. And centuries ago it was even on an important river that led to the Long Valley and all its towns.

“But circumstances conspired otherwise. You see, to the west of here is the Snow Mountains, and beyond that the Long Lake; beyond the Long Lake is the Spine Mountains. The Lake, especially, is a formidable protection from the Tutanɛs, the Hill tribes. As a result, Ora, Néfa, and the entire Chárda region are relatively secure. Nothing can attack it across the salt desert and nothing can come across the Long Lake.

“But the Eastern Shore has no protection from the Tutanɛs, who live in the hills and mountains east of it. So when the western Eryanɛ united under a monarch and that monarch aspired to rule the entire world, the monarch had to keep the armies on the Eastern Shore, to control the Tutanɛs there. As the drought spread, Mɛddoakwés became the logical center; it had two rivers and Moritua, which the Sumis modified for irrigation. So Mɛddoakwés became the capital. To keep the Western Shore happy, the crown prince is always sent to Ora, so that when he becomes king he knows the people here. And the

monarch always comes to the Western Shore every summer, when Mɛddoakwés is hot and we have rains.

"But we remain very jealous of Mɛddoakwés. If Mɛddoakwés has a school, Ora must have one. If Mɛddoakwés has a forge, we must have one."

"I see," said Chris, nodding. "Perhaps it can be arranged. We have no one who can come here, but perhaps you can send students to us for training. They could come back here with their knowledge and training."

"Perhaps. But with your rovers, could you not come here also?"

"We could."

"How much will it cost?"

Chris was surprised that money had been introduced so quickly. "Lord Mitru, I will be honest with you. I want students from Ora at our Génadɛma, and I want our people to come here. But I do not know the costs involved."

"Perhaps I can help you to determine them, then. When you are here you will need a house where as many as three teachers can stay. Each will need a room and a garden where they can meet with perhaps twenty students. You will need some servants, of course. I can provide all of that quite easily.

"If our students go to your Génadɛma, they will need to eat and someone will have to wash their clothes and serve them. That will cost about 6 dhanay a week, wouldn't you say?"

Chris thought. "That sounds correct."

"Then we will pay you 8 a week for the school and their room and meals."

“That is about right,” agreed Chris. “But I should think about our costs before finalizing the rate.”

“Fine. That’s fine. What classes have you been giving?”

“We’ve been teaching scribes our new, simple writing system. We’ve trained engineers of the Réjé about mathematics, some science, and reading. We’ve taught surveying—measuring the land—to a group of thirty young men, one of whom is with us. They are learning how to study the earth, also, to recognize valuable minerals.”

“Excellent. We could use all of that.”

Chris looked at Amos. “We need to think about our schedule of classes. Maybe we could rearrange them to teach a class here every few weeks. But I need to talk to my family.”

“I understand.” Lord Mitru sat back in his chair. “Please make yourself comfortable here during your stay. What else can I do to make your visit better?”

“Lord Mitru, I would like to see the Glugluba,” said Amos.

“The Glugluba?” he was surprised; it was not the sort of request he expected.

“Yes. I have become quite interested in them. We have a gluba near our village, an impressive one almost a dɛként long—”

“A dɛkɛnt?” Lord Mitru threw his head back and laughed, a deep, throaty, powerful, long laugh of the sort that only an amused and startled drunk man would emit. He looked at Amos and laughed again. “You know, in Eryani when we need a strong word for something and we don’t have it, we repeat the first syllable to make a new word that conveys what we’re talking about. This gluba is worthy of being called a glugluba. Your gluba is a dɛként long? This one is over three hundred! It slices right through the

Snowy Mountains. I've been there, I've seen it with my own two eyes. There are two mountain peaks, maybe six dɛkɛnt apart. They are so high there are no trees on their tops, and there is snow most of the year. Between the peaks runs the glugluba, and you can stand on the edge and look straight down to the river, which you can barely see on the bottom! But the other side of the gluba is less than a dɛkɛnt away. You can shoot an arrow across it."

Amos started. "Incredible! It must be several dɛkɛnt deep."

"Of course! It looks as deep as the distance from one peak to the other. I looked and compared the distances. This world has big glubas—it has *great* glubas—but it has only one glugluba."

"And where does it go?" asked Chris.

"To the Long Valley—or I should say to the Long Lake. But you can't walk up the floor of the gluba itself. The bottom is covered with thick forest that grows over the river. The water flows in darkness almost as thick as night time. And there are great falls of rock and dirt that block the river, so it is a series of lakes. The Long Lake is just the biggest of them."

"How long is this long lake?" asked Chris.

"Well, it's the length of the Long Valley. The Long Valley starts down by the south pole and runs almost to the north pole, so it is very long. Only the southern and northern ends are dry. The old legends say that Manu and Tritu sacrificed Yimu, the middle brother, and from his body Wɛrano created everything that exists. Wɛrano used his organs to create various things; his legs became the swift animals, his hair became the plants, his heart became the people, his eyes became the widus, his tongue became the

chattering monkeys. Anyway, when it was all finished the chest and chest cavity was left. The legends say Wɛrano used them to create Éra. The backbone became the Spine Mountains, the opening in the belly became the seas, and where Manu slit through the sides of the ribs, that became the Long Valley."

"Interesting," said Chris.

"How deep is the lake in the Long Valley?" asked Amos.

"Deep? Very deep, because the collapse of the gluba side was immense. I can't be more specific than that. You should go look."

"Maybe I will." Amos looked at Chris, who nodded. Lord Mitru saw their exchange of glances.

"Tomorrow morning I will send a guide for you."

"You are very kind. Do you think we can take our rovers?"

"How would I know?"

"Could you take a sturdy wagon or chariot?"

"Yes, along the top would be possible. I thought you wanted to see the bottom."

"I would like to see both," replied Amos.

"Then I will come with you to see the top. I would like to take up your offer to ride in a rover."

They left shortly thereafter, except Mitruiluku, who was staying at his father's house that night. Amos was so excited he had trouble sleeping. He checked his information about the Mɛlwika Gluba to verify the facts he had determined.

An hour after dawn the guide showed up to take them up the glugluba. They took one rover out the gate and upstream to where the glugluba began. Amos immediately measured the width at the bottom; an invariable 35.6 meters where the walls were intact. But since the western shore received much more rainfall than the eastern shore, usually the walls were not their original, pristine, smooth surfaces. The walls had flaked, crumbed, and in some cases collapsed, producing a pock-marked, rough, broken surface.

They walked up the gluba. The river occupied about half the bottom and meandered across it. In many places the crumbling walls had been undermined by erosion from the current; in a few cases where the river had shifted there were overhangs as much as twenty meters deep that one could walk through. Some of them had collapsed, too.

The gravely bottom of the gluba was cleared of trees at first, but as they walked up they came to a zone where cutting the trees was more trouble than gain, because there was no way to haul them through the shallow water. They hiked in the swift but shallow water, which was ice cold and crystal clear. But roots made that difficult, and since the river shifted back and forth across the gluba bottom, one had to be careful about stepping into deep spots. As the forest grew thicker and thicker it became hard to see one's footing.

After half a kilometer of trekking through the darkness of the gluba, the guide stopped. "There is no need to go farther. There's nothing else to see. No one goes up here except spirits and criminals."

"Criminals?" asked Thornton, startled.

"Yes. This is an excellent hiding place."

“It is,” agreed Amos. He looked at the moss-covered wall of the gluba near them. There were mahogany trees heading for the top of the forest canopy, above everything else. Air plants dangling from branches. Mosquitoes buzzing in the cool air; under the trees along the icy water, the air was almost cold.

“Let’s go back,” he agreed.

They walked back to the end of the glugluba. There, Amos grabbed his fifty-meter-long measuring rope. He handed the end to Thornton and the two men began hiking parallel to each other along opposite tops of the gluba, while the guide walked along the bottom. As the gluba grew gradually wider—as it got deeper—Amos played out rope. They finally had to stop when a tree blocked the progress of the rope across the opening.

“Let’s back up to that solid spot,” said Amos, pointing. They walked back about ten meters to a place where the gluba walls were relatively undamaged and pulled the rope tight. “Hum. It looks to me that it’s 43.6 meters wide. Thornton, let go.”

“You’re sure?”

“Yes.”

Thornton let go and the end of the rope fell down and across the gluba at the same time. It dangled down the steep slope on Amos’s side with only a meter or two to spare.

“Iséru! Pick up the end of the rope, take it to the bottom of the slope, and hold it there.”

“I will do it,” replied the guide. He took the end and put it under his foot, which he pressed against the bottom of the stone wall. Amos pulled the rope tight. “It’s 40.2 meters, roughly. Let’s see; the glugluba is eight meters wider at top than at the bottom

when it is about 40 meters deep. Half the gain in width occurs along each wall, so this side has gotten four meters wider, and so has that side. That's the same as our gluba; the gain in width to depth is exactly ten to one for each wall."

"Exactly the same!"

Amos pointed at the cliffs. "These walls are 83.25 degree slopes. That's the angle where every ten vertical meters of displacement produces one horizontal meter. The aliens made these glubas the same everywhere on Éra!"

Thornton laughed. "So, you can determine the depth from the width across the top."

"Exactly. Lord Mitru said one could just about shoot an arrow across this gluba when it cut through the mountains. Let's say an arrow can be shot 400 meters. That means the gluba is about 2,000 meters deep!"

"Incredible! But that's about right, if the peaks have snow."

"If anything, it's an underestimate."

Amos shook his head and started back along the edge of the gluba to its beginning. It was incredible to look into it because it was so straight and the ground along it barely sloped into it at the top. It was still too new.

They drove back to Ora, where Lord Mitru and Mitruiluku were waiting in the other rover. In a few minutes they were able to pack a few things and head out in both rovers, leaving half their gear and half their team behind temporarily.

Lord Mitru was accompanied by a man who knew the area well; he lived in a village not far from the glugluba edge, an hour's walk from town. He took them along the oxcart route to the village, a long, rough ride through forests and fields. The Western

Shore had enough rain for forest cover and Ora was in a tropical area, so the vegetation, when uncleared, was essentially jungle. The oxcart route had big potholes and lots of mud. It steadily went up a gentle slope.

They reached the village in a mere twenty minutes, much to the man's amazement. He directed them to an even cruder oxcart path and in a half hour they reached a hamlet and the end of the road.

"The glugluba is a short walk," the man said.

They all got out, locked the rovers and paused long enough to explain to the awestruck inhabitants that the rovers were not to be touched. Lébé wanted to go see the glugluba, but volunteered to remain behind and watch the rovers instead.

There was a trail of sorts through the jungle. They walked single file, looking up at the incredible forest overhead and listening to the sounds of birds, insects, and monkeys. The forest was filled with exotic flowers as well. They trudged along silently, and even Lord Mitru seemed to enjoy the scene.

They saw a clearing ahead and speeded up. When the trees ended they were surprised to see they were standing at the edge.

"Wow, it's a long way down!" said Chris. He looked. "Where is the bottom, anyway?"

"You can't see it unless you lean over the edge," said Lord Mitru. "But take care. The edge is very crumbly. Men have fallen to their deaths trying to see the bottom."

"We can do it this way," said Thornton. He laid down on a patch of grass and slithered forward so that his head projected over the edge. Chris, concerned, grabbed his son's feet.

“Wow!” said Thornton. The view was incredible; dizzying. Both cliff sides were interrupted occasionally by trees and bushes that had obtained a purchase in a crack and had survived. But otherwise one could look down—*straight* down an incredible distance.

“It must be a thousand meters,” said Thornton. “Two thousand *doli.*”

“Yes, that’s about right,” said Amos, looking across at the wall of jungle two hundred meters away on the other side.

Thornton pulled back from the edge and stood up. He held his father’s feet when Chris looked. Amos and the guide followed. Even Lord Mitru lowered his dignity to look.

“I haven’t looked into the Glugluba since I was a young man,” he said. “It is an amazing experience.”

“It is.” Thornton got down and looked again.

They stood there silently, looking at the great gash in front of them, which extended to the west as far as they could see, growing ever deeper.

“Lord Mitru, if I may, I would like to ask some questions about the Long Lake,” said Amos.

“Please ask.”

“Lord Mitru, how wide is the lake? I gather, if it extends from almost the south pole to almost the north pole, that it is about four hundred dɛkɛnt long.”

“I don’t know its length or width. I’m sorry.”

“Well, if you stand on the shore, can you see the land on the other side?”

Lord Mitru thought. He turned to the guide. “You’ve seen the lake; speak.”

“I would say you can see hills on the other side, but not the shore,” replied the guide.

“And how deep is it?”

“Only Esto knows that!” said the guide.

“Well, let me put it this way. Have you been to the landslide that created the lake?”

“Yes. Just two years ago, hunting, a group of us camped near the slide.”

“How high is the slide? Is it as high as we are above the bottom here?”

The guide leaned over the edge to consider the gluba. “I don’t know.”

“Well, look this way.” Amos pointed back and forth between the top and the side opposite them. “At the slide, is the gluba wider than it is here?”

“Yes, definitely. It is maybe four or five hundred doli wide, here. At the slide it is twice that. Of course, that is partly because the slide made it wider.”

“True. But down or up the gluba where the slide hasn’t broken the wall, is it wider?”

The guide nodded. “Definitely. Maybe two hundred doli wider. Maybe more.”

“And how high does the lake come, above the slide?”

“It comes most of the way to the top, I think.”

“Really?” said Thornton. He looked at Amos. A light had gone off in his mind.

“Wow,” said Amos. “Let’s assume a lake two hundred kilometers long, ten wide, and a half kilometer deep. That’s 1,000 cubic kilometers of water. If the old sea averaged one hundred meters deep, the water would cover ten thousand square kilometers.”

“That would be the entire old sea!” said Chris, smiling.

“I don’t understand,” said Lord Mitru.

“Lord Mitru, Éra is like Gɛdhéma in one important way. When the sun shines on water, some of it disappears into the air. Everyone knows that. If water is put on the ground, soon the ground is dry. Clothing put on a line to dry will soon be dry. That water goes into the air, where eventually it turns back into water and falls, making rain.”

Lord Mitru thought about what he said, then nodded.

“The same happens with seawater. The sun shines on the sea, and some of the water goes into the air. The wind blows it everywhere. When it rains, some goes into the rivers, which take it back to the sea. The water goes in a cycle again and again from sea to air to rain to rivers and to the sea again. It is endless.”

“Interesting. Your argument cannot be proved, but it makes sense.”

“Actually, I can prove what I say, but it would take a long time. Now imagine if the cycle is interrupted; if the river cannot take the water to the sea.”

Lord Mitru was surprised. “Are you saying the sea is now in Long Lake?”

“Maybe. I don’t know.”

“But the lake has no salt, the sea does.”

“That is correct. When the water goes into the air, the salt is left behind. As a result the salt sea is so salty nothing can live in it, and the lake has no salt at all.”

“But the sea was vast! The lake is not as big.”

“The sea was vast, but much less deep. We crossed the old bottom to get here; the land is very flat. The lake may be smaller, but it is much deeper.”

Lord Mitru nodded. “That is a very interesting theory. But it can’t be proved, and even if it could be, the information is of no use.”

“Perhaps,” replied Amos. “How can we see the lake?”

“When you reach Isurdhuna, you should be able to find someone to lead you to the shore. It is a one-day trip from there,” said the guide.

29.

Isurdhuna

The Glugluba remained the subject of conversation for the rest of the day and the next, as they headed for Néfa. “Mitruiluku, I can now give you an explanation for the flood that destroyed Ora, when it was a Sumi city,” said Thornton, as they drove northward. “The Glugluba is too narrow for its depth; slides will block it often. Some slides will be relatively small and produce a lake only one or two hundred doli deep. When the water rises over the top of the slide it will wash it away and create a huge flood.”

“I can see how that would happen,” he agreed. “But the timing when the flood occurred would still be the decision of Esto. He could use the flood to destroy the city when it became wicked.”

“Then pray for Ora,” said Amos from behind the wheel. “Because if we are right, for five hundred, maybe seven hundred years the water has been building up and building up behind the dam. The water is now unimaginably deep; it must be leaking through the dam. Remember how cold the river was? That’s water from the Lake. Eventually all of that water will erode the landslide and the lake will drain. When it does, even Ora’s castle on top of its hill might not be safe, and Ora will *never* be virtuous enough to be spared.”

“The sea will be restored in a matter of a few weeks,” said Thornton. “Hundreds of villages will suddenly be flooded. Thousands of people will have to flee their houses, and many will die. All of them will have been sinful at once, I guess.”

“The three small seas Éra has now will be destroyed, too,” said Amos. “I’m no expert in ecology. But the water will be full of mud and rock. The salinity will change

suddenly when all the fresh water floods in. I bet almost all the fish and everything else will be killed. The sea will take centuries to return to normal."

"It might never be the same," agreed Thornton. "That's incredible."

"And Sumilara will be an island again," added Kwétɛru.

Mitruiluku waved his hand. "But all of this is speculation. We still don't know."

"We'll have to find out," agreed Amos.

They followed the Royal Road north, stopping every half hour to determine their position and examine the geology and ecology. Amos kept a close eye out for signs of the old shoreline, but saw none. The road ran through beautiful, rolling farm and forest land. Every fifteen or twenty minutes a creek crossed the road, always with a trickle of water in it, and they drove through a village built where the road forded across. Lord Mitru had sent a guide with them, a reliable and well-known merchant named Isérstáru ("swift star") who was traveling to Néfa on business, and he kept up a running commentary on each village, its name, size, reputation, and products, which Lébé wrote down while Thornton shot photos. Isérstáru had an encyclopedic knowledge of the entire Western Shore.

The road wound in and around the low tropical hills, then began to descend into a large bowl: the Néfa valley, Isérstáru explained. It was round, shaped a bit like the hub of a wheel, for which it was named. The villages became more numerous and the forest disappeared; the trees had all been cut down. Most of the land was rice paddy, currently dry and harvested.

The city stood near the center of the bowl astride the Rudhisér, the main river of Chárda, which descended from the heartland's central valley to the lowlands and then

into the Néfa bowl. The city was partly built at the river level on both banks and partly on a small mesa above it, which in turn had a high end where the citadel and temple were located. The wall was confined to the mesa alone; they were able to drive into the river portion of the city without any difficulty, except for the crowd their presence generated. They crossed the river on a lovely bridge. Isérstáru directed them to a caravanserai and helped them negotiate a good rental rate, then went with Chris, Mitruiluku, and Sarésunu to the citadel to request permission to stay. That took the rest of the morning.

Amos, then Thornton went out to walk around the city. Néfa was about the population of Mɛddoakwés—six to eight thousand people—but because it didn't have a wall confining its growth, it sprawled more and had more open spaces. The spaces were not parks; animals were kept in them and grazed on whatever grass they could find. The city sent fingers of houses along the riverbanks and along all roads leading to the countryside. Unlike other Eryanɛ cities, Néfa actually had a few trees in it; it was not all brick, adobe, stone, and mud. The construction also involved far more wood than in Méddoakwés, because of the more forested landscape. The city was dedicated to Wɛrano, the all-seeing aspect of Esto, but the temple had no statue to him, just a large stone eye.

Amos explored the market with Sarésunu, who was delighted to be in his home city. Néfa was renowned for its leatherwork, beadwork, textiles, jewelry, and other luxury goods, which didn't interest Amos much. In contrast, Ora had extensive metalworking, wagon-making, tool making, and other manufacturing. He could now see that the cities were quite different in terms of the skills they had developed. It was another argument in favor of establishing a school in Ora.

That evening they had no invitation to a house, but Isérstáru came by to eat with them, he invited other friends in the caravanserai to join them, and soon there was a group of fifty people eating in the central area of the caravanserai around a large fire, asking the gɛdhémɛs about their lives, their world, and their rovers. Then Amos asked questions as well.

"How many caravans go from here to Ora?" he inquired.

"There's one about every week," replied Isérstáru. "There are some things that are made only in Ora and Mɛddoakwés that must be hauled here—tools and things—and Néfa has goods that others want. But it is expensive; typically it increases the cost of an item by at least one half."

"And from Ora to Mɛddoakwés?"

"Two or three caravans a month," said someone. "From Néfa, perhaps one per month. Néfa has one caravan per week to Isurdhuna, two per month to Bɛllɛdha, and one per month to Anartu. Ora has two caravans a month to Tripola, down south. I think Bɛllɛdha and Tripola each have one caravan a month to Mɛddoakwés. And Anartu runs two caravans per month to Mɛddoakwés and two to Ora."

"I see that some use camels and some use donkeys," said Thornton.

"The camels are used only in the desert areas, because they can go without water."

"Is there a serious danger of attacks by thieves?" asked Amos.

"Not to the big caravans," replied Isérstáru. "If someone attacks a big caravan the army will go after them, so the big ones are safe. There isn't enough traffic in small caravans and small groups to support thieves, though sometimes things happen and travelers disappear. Your party is rather small to travel alone."

“But we can travel fast,” said Chris. “We could go from Mɛddoakwés to Néfa in less than one day, and back the next day.”

“You can do that?” asked someone, amazed.

“And I hope, some day, we can make machines that can move without horses, donkeys, or camels,” said Amos. “Then all your caravans can move from city to city very quickly.”

“We wouldn’t have enough business!” said a one-eyed man.

“Oh, you would,” replied Amos. “On Gɛdhéma we can move goods very cheaply and quickly over much longer distances. Anything you want or need you can get in your village, and it might be made anywhere. Even food is transported long distances, but it is not expensive. The people who move goods move very large quantities, so they can make a living.”

“Esto be praised!” exclaimed a man.

“We leave for Isurdhuna tomorrow,” said Chris. “We will leave soon after dawn and will be there before noon. Does anyone need to go there? You can come with us.”

“Me.” A young man raised his hand. “My wife and children live in the Holy City.”

“What is your name?”

“Léfu.”

Chris looked at the faces around him. No one seemed concerned. “Then you may come with us, Léfu.”

They left the next morning for Isurdhuna. Léfu went with Thornton and Lébé in Amos's rover, and proved talkative. While he didn't know much about the villages or the landscape between Néfa and Isurdhuna, he did know a lot about the latter city, and was happy to talk. He was also intrigued by their frequent stops to measure their position and look at the rocks.

The royal road took them westward across the Néfa valley to the edge of the highlands. Like at Ora, the land started to rise abruptly and continued up, though at a more gradual pace. The highland was rolling, an irregular sloping surface with occasional hills. Well watered, it was heavily forested except where people had cleared fields, mainly along the frequent creeks. The royal road was rutted and muddy, but at least it provided a passable route through the forest. In twenty kilometers or so they had risen almost a thousand meters and tropical forest began to give way to temperate forest.

They stopped where a creek had exposed some bedrock and Amos pulled out his rock hammer while Thornton pulled out his sextant. Skanda was balanced on the horizon and hard to measure. Amos and Sarésunu chipped and chipped away; the highlands were made up of a light-colored igneous rock—unlike the lowlands where dark basalt prevailed—and this outcrop had very large crystals that interested them. They took some samples.

They began to get back in the rovers. Thornton walked past Chris's rover to get to Amos's and heard a faint hissing. He looked closely. "Hey, dad! You've got a flat tire developing!"

"Really?" Chris came over and saw. He felt the tire and found the tiny gash.

"Cut on a rock," he said. "It's quick to fix."

He, Amos, and Thornton got to work while the others gathered around to watch. The tire did not come off easily; it had rusted on, so they had to work it loose carefully. But then it was fairly easy to finish the job.

The sound of approaching horsemen caused them to look up from their work. It was a very large party; the advance cavalry consisted of twenty men, and behind them were wagons and nearly a hundred persons riding on horseback. After the cavalry rode past they looked closely at the others.

"It's the royal party!" exclaimed Mitru.

The lead coach was quite magnificent; polished metal and fine wood, drawn by a team of four beautiful horses. It bounced and swayed over the road, however, because it had no springs or other suspension system. As the coach approached it slowed and the curtain at the window parted to reveal the Réjé's face. The coach had quite a group in it; Chris recognized two others.

When she saw the rover without a rear wheel, she laughed. She opened the window. "You should get a horse, Mennea!" she said as the coach passed them. Chris smiled and nodded.

"She's wrong," mumbled Mitruilubu under his breath.

They stood and waited for the royal party to pass; they had parked the rover partly on the road and thus could not finish the tire until the traffic had passed. The queen's coach was followed by five other coaches, then wagons loaded with servants and supplies. Men and women riding horses passed them on both sides, some laughing.

Once the party had passed they finished changing the tire, somewhat embarrassed, and were on their way. The road continued uphill, but soon grew much steeper and

rockier. In the next hour the air became quite cool. Broadleaf trees were replaced by firs. Yet even at the altitude there were scattered villages, with their vegetable and rye patches and herds of cows or sheep grazing on the hillside.

They passed a few steep-sided peaks that appeared to have been glaciated at some time in the past; an indication that Éra's weather had not always been temperate. The trees on their tops were ragged and short, proof that the climate got fairly extreme even now. Twenty minutes later they saw another peak on the northern horizon that was even taller; it was treeless, with bare rock on top, though in late summer the south face visible to them had no snow. Then the road began to descend steeply and soon they could see a great rift valley in front of them, perhaps fifteen or twenty kilometers wide. Both sides of the rift were delineated by cliffs about a kilometer high, and looking out at the horizon they could even see the world's curvature. The fir trees were soon replaced by broadleafs and warmer air.

When the road reached the top of the cliffs they were momentarily puzzled which way to go, but the road paralleled the cliff southward a hundred meters, then descended a natural ramp that was barely wider than the rovers. Below they could see the Rudhisér flowing across the rich, green plain, which was densely farmed but had scattered patches of forest left on it. Isurdhuna was a gray patch to the right, or north, a few kilometers from the base of the cliff. It was located at the confluence of three tributaries: one flowing southward down the rift valley, one flowing northward up the valley, and one descending the rift valley's western cliffs from the highlands via a gluba that ended at a magnificent waterfall. After the three came together near a tall, steep rock, the resulting stream

headed straight toward the rift valley's eastern cliff, where it entered an incredibly deep and narrow gluba.

The descent was frightening and spectacular at the same time; one of the few times the small world offered a spectacular vista over long distances. Fortunately the royal road was well built for wagon traffic to take the route down the cliff. They stopped several times when the bedrock changed in color or texture, for the cliff was a gash into the bowels of the world, revealing a glimpse into its interior. Amos shook his head, wondering what forces could have ripped Éra open.

Halfway down the cliff a switchback turned the south-facing road toward the north instead. They reached the base of the cliffs just a few kilometers from the holy city; its temple to Esto, set high on the central rock, was visible over the plain, which had recently been cleared of its wheat harvest. They accelerated to fifty kilometers per hour, a safe pace on the open plain.

Isurdhuna had no city wall around it at all; it was safe in its valley. The hill or rock just had a temple to Esto, but a low rise at the other end of town was crowned by a citadel. Without a confining wall Isurdhuna, like Néfa, sprawled, but unlike Néfa it seemed cleaner and newer than other Eryanɛ cities.

"We go in on this road across a bridge, then turn left at an intersection," Eva explained. "I'm sorry to take us through part of town, but I don't know a way around."

"That's alright; so far we've never had a problem in a city, if we drive very slowly," replied Chris. He picked up the c.b. microphone. "Hey, Amos, could you tell your passenger we're driving over a bridge, then turning left and going back out of town, and ask him where to drop him off."

“Right.” There was a pause. “He says at the intersection.”

“Okay, we’ll watch for you.”

Chris watched the road very carefully because the rovers tended to have a rather drastic effect on the populous. Some stood, paralyzed or fascinated; others fled; others followed. A few threw things, but because there was a crowd near the rover many feared they’d hit others.

They crossed the Rudhisér on a nice, new bridge. On the other side was a large market square; perhaps the city’s largest. The entire square stopped their business to see the strange vehicles enter over the bridge. Then the rovers stopped to let Léfu get off with his possessions. He waved goodbye and everyone shouted goodbye out of the rover’s open windows, a normalcy that no doubt made the bizarre scene even more bizarre to the onlookers. Then the rovers turned and drove out of the square on the westward road.

“How far?” asked Chris.

“We have to drive to the western cliffs, and south of the city,” replied Eva. “It’s a long walk for my mother—I think it would take her all day, now—and even on a horse it can take until almost noon to reach Isurdhuna from home.”

“And a horse goes maybe ten dɛkɛnt an hour,” said Chris. “That helps a lot.”

In a few minutes they had crossed the North Branch of the Rudhisér on another bridge and left Isurdhuna, with its mystified crowds, behind. The road was a good one and they speeded up to a pretty reasonable pace, except when they approached wagons or horses, for whom they slowed down. The West Branch of the Rudhisér paralleled them a hundred meters to the north as they headed for the western cliffs. The waterfall that fell halfway down the cliff grew closer and closer.

Then just a few hundred meters short of the cliff Eva directed them to turn left. They headed south down a fairly good dirt track paralleling the cliff. After crossing a creek the road veered right, to follow the creek toward the cliff. They could see a cluster of about a hundred stone houses with red tile roofs ahead of them, built where the creek and the road both ascended a natural ramp up the cliff.

"Where does the road go?" asked Chris, nervous at what he saw ahead.

"It goes up to the top of the cliff, then west toward Long Lake," replied Eva. "But this village is Frachvála; our destination."

"Oh! So fast!"

"Your rovers are faster than our horses," replied Eva.

They drove into the village on the road, which was still considered the royal road. Eva rolled her window down and waved at everyone she saw, calling out their names, and they waved and shouted back. But others ran through the village shouting "The Jádhémas are here! The Jádhémas are here!" which immediately drew a crowd. Since most of the crops were harvested, everyone was home, and headed for Isafela's house.

Eva pointed to an alley barely wider than the rovers and Chris turned onto it. About half way up they stopped. Amos pulled the second rover up closely behind the first and looked.

"I wonder whether I should have backed up this alley instead," he said. "Well, actually we can probably go out by going forward. I see a field ahead."

"Where will we put them?" asked Thornton.

Amos shook his head. “I think I’d leave them here. We have some tarps; I’d nail tarps across the alley ahead and behind us and seal it off, converting it into a kind of garage.”

“But we’ll block it.”

“Yes, but it isn’t a dead end.” Amos pointed to the field ahead.

They could only open the doors on the driver’s side because the mud walls were so close. They squeezed out and gathered in a single file next to the rovers. Eva got out as well and waved to neighbors who were running up the alley. She entered the door of the house at the same time her mother came out, disturbed by the noise.

“Eva, you’re back!”

“Yes mother, with the jádhémas!” She pointed. Isafela saw the rovers and her eyes grew large.

“My goodness, they’re. . . they’re—” She couldn’t think of a word for them.

Chris stepped forward. Isafela was an old woman; she had only two teeth left, so her jaw and face were shrunken. Her hair was white and she wore an old green wrap. He extended his hand to her. “Isabela, we are honored to meet you.”

She stared for a moment. “Thank you,” she finally said, and took his hand. “I think I shouldn’t have worried so much about you!”

“They have their rovers,” said Eva. “So they can get around quickly.”

“Indeed. *Rovers.*” She said the word slowly, then shook her head. “No, that’s not the word I want.”

“Where on Earth were you from?” asked Chris.

“Peru. Santa Rosa.”

"That's what we thought. Español?"

"Español. Yes, I spoke Español, once. Do you speak it?"

"No, I'm sorry, I do not, *parlo Italiano*, I speak Italian. Could we come in?"

"Oh, of course." She turned and walked into the house's neat little courtyard. Five doors opened into it; one was open and had straw and wheat beyond; the others opened into rooms for people. A young man in his late teens saw Eva and was joyful.

"Mother!" he said. "We were beginning to worry greatly."

"I'm fine, but I almost died," she replied very matter-of-factly. She gave him a quick, formal hug; the Eryanɛ did not display much affection in public. An adolescent daughter appeared at the moment and she, too, received a hug. "These are my children, my son, Modékvu, and my daughter, Málité."

"We are pleased to meet you," said Chris, with a smile.

Villagers were beginning to poke their heads into the courtyard; no doubt there was a crowd surrounding the rovers. Chris pointed. "I think we should walk to the open space where you enter the village, where we can be introduced to the crowd. We'd like to stay a few days."

"Of course, you are welcome," replied Eva. "Let's walk to the field you suggest."

She turned and walked out, to the alley, where the crowd was large and growing every minute. She led them and the crowd to the field, where Chris could introduce himself and his party to the village. Then people asked questions for several hours, including Eva. When the sun grew hot and everyone began to get hungry the crowd began to shrink.

Finally they all returned to Eva's small house. Neighbors brought a thick wheat and vegetable soup with some fish in it. They sat and ate.

"So, this is Kɛrda," said Chris, looking around at the adobe and stone walls. "Very interesting."

"The heartland of the kingdom of the Eryanɛ," agreed Isabella. "A very special place. Of course, I have never left it, so I cannot compare."

"The Eastern Shore is very different, and I had thought all of Éra was like it," said Chris. "It is very dry; sometimes there is no rain for half a year. Here there is rain almost every week."

"Yes, especially this time of year. We are blessed with rain, rivers, forests, vegetation, rich crops, and game." Isabella sipped her soup slowly. "I am amazed that you people have done so well, in just a few months. You were lucky to be put where you were put, where Mr. Miller could help you. I had no such help and it was very difficult, as a result."

"We heard," agreed Chris. "Modékvü, how old are you?"

"Fifteen," he replied. "And I plant all of mother's fields for her. We raise six agris of wheat and lentils every year."

"Very good. Málité, how old are you?"

"Twelve," she replied.

"They are both very helpful," said Eva. "Modékvü is quite a good hunter. He goes out with several men in the village, especially in the winter, up into the hills, and he almost always comes back with something."

“The men are kind to bring me along,” replied Modékvü. “With their horses, we can range far.”

“Do you go as far as the Long Lake?” asked Chris.

“Sometimes.”

“We’d like to see it. Could you drive a chariot there?”

“On the road, yes, but it would be difficult.”

“I’m sure,” replied Chris. “Are there many villages along its shore?”

“No. The lake is in the heart of the mountains and is very high and cold. It is hard to raise crops there; the soil is bad. Besides, the lake is surrounded by cliffs, so it is hard to reach. And it is slowly rising.”

“Rising?” asked Chris.

“Yes; maybe a *doli* every year. The shore is covered with drowned trees, and there are dead trees floating in the Lake, which makes it difficult to take a canoe out.”

“Fish?” asked Amos.

Modékvü shook his head. “Almost none.”

“The water wouldn’t have oxygen,” said Amos.

“We should secure the rovers for the night,” said Chris, changing the subject. “And set up our places to sleep. Will it be possible to block your alley completely?”

“Yes, I am sure no one will complain,” replied Isabela.

“Good. I plan to sleep in my rover tonight; I want to make sure they are safe.” Chris rose from the mat on which he had been sitting and eating to attend to the rovers.

Night fell and they all went to sleep quickly, except Amos, who was on the radio talking to people at home for several hours. The next morning he was busy with

maintenance of his rover, so Chris, Thornton, and Lébé drove to the great waterfall to see it and try to meet the great widu, Jawéstü, who was said to live most of the time in its vicinity.

The waterfall was easy to reach; with the rover, they arrived in five minutes. The roar of the falling water was incredible; it was audible even at Frachvála. The large river that tumbled out of its gluba fell at least three or four hundred meters to a circular depression it had blasted at the base. They could not approach the base very easily because of the mist; probably a third of the falling river was blasted into a spray and it descended to spread out widely. The ground was covered with mossy rocks, so Chris was hesitant to drive the rover into the cloud very far lest it get stuck. They stopped a few hundred meters away to admire the sound and sight and take pictures.

There were quite a few Eryanɛ going into and out of the mist cloud, stripped to yellow loincloths only. A small shrine nearby was the pilgrims' first stop, where they donned the special clothing.

"I think the mist must be seen as purifying or healing," said Lébé. "A place with such a sight and sound must have a lot of divine power; well, that's what people would think."

"This should be a sacred place," agreed Chris. "Let's walk over there."

They locked the rover and crossed the river on a little stone footbridge. They peeked into the shrine; it had a statue to Saré, who had an herb in her left hand while holding a child to her bosom with the other. Four women and a man were chanting a hymn of Widumaj together. Thornton discretely shot a few pictures. Several rooms

nearby were for changing; women sat outside of each to collect a fee and watch one's possessions. They all stared at the jádhémás.

"Do you know where we can find Jawéstü?" asked Lébé to one woman.

She pointed to a cave part way up the cliff. "He's usually up there," she replied.

"Thank you," replied Lébé. "How do we get there?"

The woman pointed to the base of the cliff. "There is a way over there."

Lébé nodded and turned to Thornton and Chris. Thornton zoomed in with his camera and thought he could see a way up the cliff, so they crossed the river again and walked along the base of the cliff a ways, looking for the trail up. But after fifteen minutes of searching they could not find it.

"We had better go back and ask again," said Chris.

So they turned and headed back to the shrine. As they approached they saw an older man come out of one of the changing rooms. He was white-haired and looked a bit frail, but moved quickly. His garment was exceedingly simple—a simple cylinder of cloth from his shoulders to his knees, with holes for his arms—but it was remarkably clean. He was the only new person around to ask, so Chris approached him.

"Honored sir, do you know the way to Jawéstü's cave?"

The man stared. "I do not think he lives in a cave, honored sir."

"Oh? We were told that he lives up there." Chris pointed.

The old man squinted. "Indeed, he does live there, but it is not really a cave. It is a room carved from the rock. I guess it must be very soft at that spot."

"Perhaps. We were looking for a way up and could not find a trail."

“You could not find the trail? That is a problem. Why would anyone want to visit a widu, anyway? Especially one named ‘God’s cow.’ What sort of name for a widu is that?”

“It’s probably a reference to the Hymn of the Beasts,” replied Thornton. “There’s a line there about the sacredness of cattle and how they should be treated well, and if they are to be eaten, they should not suffer when they are killed.”

“But Widumaj then says all animals should be killed quickly so they won’t suffer. He must have had a soft spot in his heart for beasts. And in the Hymn of the Horse he calls horses sacred beasts, too. Why shouldn’t he be ‘the Horse of God’? Ekvéstü; now there’s a name for a widu. Much more dignified.”

“If we get the chance, we’ll ask him,” replied Chris, patiently. He was beginning to worry that he had stumbled upon some sort of Eryanɛ skeptic. “We appreciate your assistance.”

He started to turn away to find another person who might advise. The man stared at him. “Well, I do know the way up, you know! I’ve been there a few times.”

“Oh? Could you point the way?”

“I probably could even show you,” he replied, and he immediately turned and headed for the bridge. Chris and the others had to hurry to catch up.

“Thank you.”

The man walked toward their rover, then turned into the forest. He stopped. “You came in this metal machine?”

“Indeed. It takes us with great speed.”

“Very good. If I take you up, maybe you can take me to Isurdhuna?”

“Indeed, we can do that.” Chris was surprised by the request, since most Eryanɛ wanted to stay away from the rovers for an hour or so before curiosity won out over caution. “What is your name?”

“Oh, call me Ekvéstü; I think everyone prefers ‘the Horse of God.’””

“Are you a widu, too?”

He laughed. “I don’t even know what a widu is, other than a man with strange visions! Half the time they don’t make sense. Sometimes they’re faked. Do you have widus on Jádhéma?”

Chris was surprised the man knew he was an earther. It was rather obvious, but the idea was usually quite a shock to an Eryanɛ; he was never treated normally, certainly not within a minute of meeting. “On Jádhéma there are widus. Some are false, as you say, some have strange visions, and a few, like Widumaj, are of eternal importance.”

“Of course. Yésu, for example; we’ve heard of him. But what do you think of our Widumaj? Those who follow Yésu reject Widumaj.”

“Not all. We follow Bahu, who says Yésu is a true great widu, and we think Widumaj is probably of the same class of prophet as Yésu and Bahu.”

“Bahu? I haven’t heard of him. Are you teaching him on Éra?”

“We are honored to answer questions when people ask, but our goal is to be servants of the people. Jádhémás do not choose to come here. They are put here when they discover the aliénás spying on Jádhéma; in response, the aliénás exile them here. We were driving along in our rovers—our machines—when we saw an aliéná ship that flies through the air fall to the ground. We went to it, thinking it was an air ship piloted by one of our people, and the man inside might be hurt. Then another aliéná air ship came along

to rescue their comrade, and they took us as well. So here we are, on Era. What should we do here? We decided that since Bahu says to serve others—just as Widumaj says—we must use our knowledge to serve. So that is what we are doing."

"How long have you been here?"

"Since the end of ɛjnaménu, in Mɛddoakwés."

The man stopped and pointed to a spot where there was a steep area of bare rock in front of them. "We go up here." And he started climbing. They followed behind him. As soon as he reached the first ledge, just five meters above, they were surprised to see steps cut systematically into the rock. "It is easy from here up. The first ten doli are difficult; it discourages the faint of heart, I suppose. What brings you halfway around the world from Mɛddoakwés?"

"We brought a woman home to Frachvála."

"Isafála?"

"No, her daughter, Eva."

"I think I have met her, too. Half Jádhémá."

"Indeed. Her mother heard of us and wanted to walk all the way to Mɛddoakwés and invite us to come live here, where everything would be safer and easier. Eva went instead and almost died. We brought her home safely."

"Esto rewards good deeds." It was a quotation from a hymn.

They huffed and puffed up the stairs, which brought them to the cave opening quickly. The opening was natural, though it had been carved a bit also. The original cave had been dug out quite a lot, so that it had a flat floor and straight walls and was about

twenty feet wide and deep. The inside was surprisingly comfortable, but no one was there.

"Oh; he is not here."

The man looked inside. "I can invite you anyway. I know where the water is kept." And before Chris could reply the man walked into the cave. He opened a square wicker basket and pulled out some clay mugs and beckoned them in.

Chris, at that point, was suspicious. He led Thornton and Lébé in. "Are you sure 'Cow of Esto' is not an appropriate title for you as well?"

"As you wish; I respond to anything." The man uncorked a jug and poured water. "Please sit."

Thornton looked at his father; he had figured out the situation as well. Lébé was still uncertain. They sat on the mat near the entrance. The man gave them the mugs.

"And why do you want to meet Jawéstü; or maybe I should say Gawéstu, since you speak the sweet speech of the Eastern Shore, so close to the language of Widumaj."

"Wɛrétrakɛstɛr said we had to meet him, because he is a *saktu,*" replied Thornton.

"Did he? Wɛrétrakɛstɛr is an interesting fellow. I am never sure what to make of him. He has visions, though; he does not just rely on his mind. Both of you rely on your minds as well; I can tell. I bet you have never had visions from Esto."

"No, I can't say that I have; though I have felt divinely guided a few times," replied Chris.

"Well spoken. I feel that too. But let me tell you about visions. This morning, for example, I had a dream where Wɛrano of the thousand eyes came to me. He said 'be prepared for visitors today. They will turn this world upside down for Esto.' I thought,

how extraordinary! So I went down to the waterfall, prayed, said my daily hymns, purified myself in the spray, and there you were. But what I don't know is whether 'turn this world upside down' is a good vision or a bad vision."

"We don't know that either," said Chris. "We feel our service will turn the world upside down. We want the turning to be good, but can it always be?"

"No. Turning the world is always necessary, but it is always difficult and the results cannot be predicted. More important is the motive of those who turn the world upside down. Do they do it for their own benefit, or for the benefit of others, or even better, because it is the will of Esto?"

"It is on that that Esto judges," agreed Chris. "One must pray that Esto will prevent something if it is bad for His plans."

"The most important change must always be for the poor, not against them. This is a world of many poor people and few rich. And the rich are very rich. Widumaj condemned this, yet it has been happening more and more, generation by generation, as the Eryanɛ take on Sumi ways. This weighs heavily on my soul."

"On ours, also. We seek a world where all can work to support their children; where all can eat, have clothing, and have a comfortable house where they can live. We also seek a world where much disease has been banished and people live many more years; where the threat of war has ended. It is possible here."

"Perhaps it is, though it has never been achieved. Perhaps it has been on Jádhéma; I do not know." Gawéstu leaned back. "In the last few months I have been having many disturbing visions. I have not understood them. They reflect chaos and change. The chaos has generally been bad, I think, but the change was generally good."

"We have not seen any chaos yet."

"These were visions about the future. They have not happened yet."

"What are your visions like?" asked Thornton.

Gawéstu looked at him. "They come in different types. Some are dreams while I sleep; some are visions while meditating; some are voices while I am walking. Some involve an incarnation of Esto, especially Wɛrano, who seems to favor and warn me, or Saré, who seems to care for me. Usually they speak to me, but sometimes they point to an image. Other visions are silent and I see some event in symbolic form; for example I will see animals fighting. Other times I see the symbols and hear an explanation. The visions I have seen have been in both sleep and meditation, and have been symbolic images and scenes, sometimes with enigmatic comments. I have never had such a string of them and they disturb me greatly."

"How do you know when a vision comes from Esto?" asked Chris.

Gawéstu smiled. "That is the difficult question, and one the Eryanɛ never ask me!"

"I apologize. I was impressed by your willingness to question your title of widu, when we were walking here."

"A widu must question everything. I was not objecting to your question; just noting how unusual it is. Sometimes I feel a certitude about a vision or guidance I received in prayer. And sometimes—" he shrugged. "Perhaps it was caused by indigestion."

"Or perhaps it is your own mind, reviewing knowledge you have and expressing your wisdom symbolically."

"That is a better way to put it, than indigestion. But who knows?" He pointed a finger at Chris. "I will pray for you and your entire household. I see a wind whirling around your household and threatening to rip it apart and blow it away. You are at the center of the turning of the world; I am sure that is part of what I saw. It is a dangerous place to be. And whatever you are doing, I feel Esto favors it."

30.

Long Lake

The party spent three days in Frachvála, enjoying the hospitality of Isabella and her neighbors and talking to a constant stream of visitors about Earth. Isurdhuna had many intellectuals—philosophers, one could call them—because it prided itself as the center of Eryan culture, and many of them walked to the village after hearing about the strangers' meeting with Jawéstü and, on his request, their driving him to the tomb of Widumaj for prayers. Many requested copies of the various booklets produced by the Génadɛma, including a draft of the compilation of hymns of Widumaj. They were fascinated by the new writing system and its advantages over the older system, as well as the paper the Menneas had.

Among the visitors was Gnoskéstu, the Lord of Isurdhuna, who first tried to buy a rover—offering Chris two more wives in exchange—then when he understood the rovers could not be separated from each other or from the people who operate them, tried to persuade the entire family to relocate, though he did not offer any significant financial incentives for them to do so.

On the third day, while Chris and Thornton entertained visitors, Amos and Sarésunu took one rover and set out along the road leading up the cliff. Because of curiosity half the village went along, and when they saw the bulldozer blade clearing rocks to make the road passable they helped out. By the end of the day the rover had made it to the top of the cliff—with great difficulty—and the road, previously unusable to all but the smallest and toughest wheeled vehicles, was now passable for most wagons.

Many people joked that their village could no longer be called “Broken Wheel” because now the vehicles would break their wheels elsewhere.

As the sun rose the next morning both vehicles set out with Chris, Amos, Thornton, Lébé, Mitru, Mitruiluku, and Sarésunu, augmented by Modékvu—Eva’s son—and Járchástár, “animal slayer,” a name that fitted his reputation in the village perfectly. He knew the western highlands extremely well.

In two hours of slow, careful driving both rovers reached the rim of the rift valley. They paused at the top to look back; Thornton took some picture with his digital camera, for he had loaded the previous bunch onto the storage space the aliens had given them. So far he had taken hundreds of photos and no one had complained about the quantity of space he had used.

They turned to look at the forest before them: thick and little used by the Eryanε, uninhabited, and lawless. Even Járchástár seemed to shudder a bit. Then they climbed into the rovers and drove down the dirt track.

Amos was in the lead, bulldozer blade down. He could go only so fast because the blade was constantly knocking down small trees or pushing rocks out of the way. They had to improve the road as they went; while it was called a “royal road,” it had not been maintained at all for fifty years, when the Réjé’s grandfather died. Horses and occasional chariots rode it, and their passage had kept it open.

Progress was extremely slow and fuel was burned with incredible speed. But as they went up the forest grew less thick and the trees smaller. The slopes were never steep; Éra was not a craggy world, except for the rifts and some glaciated peaks. By noon they had traveled about sixty kilometers—but the sextant said only thirty kilometers in a

straight line—and were passing through alpine meadows at the treeline. They had achieved considerable altitude; over three thousand meters. Peaks nearby had snow on them.

They stopped for a late lunch; even though the sun was overhead they had passed west by two time zones, and thus were eating at 2 p.m. Isurdhuna time. They were already 13 time zones west of Mɛlwika, with two or three more to go before they reached Long Lake.

After eating they set out west again, rolling across alpine meadows and finally downward into lower altitudes and warmer climes. The trees returned, at first short, then taller. About an hour before sunset, as they maneuvered through a fairly thick forest, they had to stop suddenly at the edge of a cliff. Blue extended beyond them.

"Are we here?" asked Chris, startled by the suddenness.

"We are," replied Járchástár. He had proved quite stoic, rarely offering more than five or six words in response to a question.

Chris got out. Thornton pulled the other rover up next to the first and everyone got out of it as well. They all inched toward the drop off; it was hundreds of meters down to the water.

"You can see drowned trees down there," said Thornton. "Sure enough, it is rising!"

"There is a place, a short walk from here." Járchástár pointed north, along the shoreline. "The cliff broke away and there is a gradual, forested slope leading to the water. Many animals descend there to drink."

"How long is this lake, to the north?" asked Chris.

Járchástár considered the question. “I think three or four days’ walk.”

“And south?” Chris pointed.

The hunter shook his head. “I have never gone past the Glugluba, which is about a day and a half south of here.”

“Is there a place to cross the Glugluba?”

“No. It is impossible.”

“Does the lake fill part of the Glugluba?”

“It fills the Glugluba for about half a day’s walk, then you come to the collapse.”

“The collapse?” Chris persisted.

“Indeed. The northern side of the Glugluba broke off and fell in, blocking the Glugluba. This lake is behind the blockage.”

Chris’ face lit up. “Járchástár, can you take us there tomorrow?”

He looked at the rovers. “They cannot go. There is no road.”

“I understand. But we could walk it in two days?”

“I think so.”

Chris looked at the others, who nodded. “But someone has to stay with the rovers,” said Mitru. “I can, and Mitruiluku.” The latter nodded; a refined city man, he did not favor a two-day walk through forest.

“Alright,” said Chris. “Let’s set up camp somewhere. Járchástár, where is a good place?”

“North of here.”

“Wait, let me shoot the other shoreline with the surveying equipment,” said Amos.

They stopped while he pulled out his tripod and aimed it at a particularly prominent rock visible on the other shore. A curl of smoke rose near it; people lived on the other side. Meanwhile, Thornton measured the position of the sun and noted the exact time. They had come 190 degrees around Éra; if they could continue west, it would be a shorter route home than going back east.

"How wide is this lake?" he asked.

"I'll tell you tonight or tomorrow," replied Amos, concentrating on his measurement. "I'd guess about ten kilometers."

They waited a few more minutes for him to finish, then they turned the rovers around and tried to take them down the trail that followed the top of the cliff. But that proved impossible; there were steep drops and big boulders. They had to back up to the flattish area where they had stopped and camp there.

They set up the tents between the rovers, which would break the cold wind and provide some shelter from animals. They brought lots of firewood into the space as well and started on supper. The sun set behind the trees in the west and darkness fell with surprising speed. Éra's small size usually guaranteed long dawns and dusks—a formation of high clouds could glow three hours after sunset—but the sky was clear that night and the high mountain air was thin and free of haze. Furthermore, Skanda was below the horizon. As a result, forty minutes after the sun disappeared the sky was pitch black and crowded with stars.

"My God, look at them all!" said Thornton, walking away from the campfire so he could see them.

“It’s better than during an eclipse!” added Lébé, amazed. Ironically, at Mélwika the sky was darkest in the late afternoon when Skanda covered the sun for eighty minutes. Even after the twilight of sunset ended—when Skanda was at its thinnest—its brilliance banished all but the brightest stars. “How many are there, Thornton? Can we count them?”

He laughed. “There are too many to count, I’m sure! I think there are more here than on Earth. I suppose we should map them, some time.”

“Perhaps that’s something you can do while we’re waiting here.”

“Hum. Maybe.”

“Are you disappointed?”

He turned to her and could see in the darkness that she was looking at him, even if he couldn’t see his emotions. “Yes, I’m very disappointed. I suppose, though, dad doesn’t want to leave the rovers with Mitruiluku, and we do need to leave more than one person with them.”

“Yes, I think so.”

“Of course, three or four days here will give me some time to catch up with the computer. I’m way behind in logging all the information we’ve gathered. I couldn’t do that if I went with them.”

“We’ve been traveling ten days and you and I have had very little time together,” said Lébé. “Perhaps this is a chance for us to have more time.”

He smiled, and in the dimness he could see she was smiling too. “Yes, of course, you’re right. That’s more important than the computer!” And he leaned over to kiss her.

They kissed for a long time. It was nice to have the moment of privacy together; it had been too long.

"Of course, we'll have privacy and you'll be able to do some work!" said Lébé, when they separated.

The next morning Chris, Járchástár, Amos, Sarésunu, and Modékvu assembled all the equipment they could carry with them, plus two tents and sleeping bags—items that seemed to amuse Járchástár as much as interest him—and they set out. Mitru and Mitruiluku watched them go with mixed feelings. They set off for the glugluba shortly thereafter.

Járchástár set a fast pace southward, more or less along the top of the rift, though the party gradually moved inland away from the cliff top and were able to see more and more of the lake as they went. They stopped occasionally for Amos and Sarésunu to survey and to look at the rocks or vegetation; again, Járchástár watched stoically, not sure what to make of their activities. By shooting prominent rock surfaces on the other shore with the sextant every half hour or so, Amos was able to build up a series of observations about the distance across the water.

At sunset they camped near the treeline next to a racing, icy-cold creek. Amos sat and calculated the trigonometry in his notebook, with Járchástár looking over his shoulder and asking many questions, and—surprisingly—grasping the principles of trigonometry with great speed. In Isurdhuna even the hunters were intellectuals, it seemed. "Ten and a half kilometers wide," concluded Amos. "That's my average. The cliffs on both sides of the rift are not perfectly parallel, so the width varies a bit."

“That’s amazing; this surveying works with such great precision!” said Sarésunu.

“If the baseline has been measured accurately,” said Amos, staring at the page. “Let’s make a few assumptions. Let’s assume the lake is a kilometer deep; it’s a nice, round number. And let’s assume it extends from 70 degrees north to 70 degrees south, 140 degrees altogether. And let’s assume the lake is uniformly ten kilometers wide. How much water would it hold?”

Sarésunu understood the question and started to tackle it, but quickly gave up.

“You can do it,” said Amos, with a smile. “To convert the length from degrees to kilometers, we multiply by 1.5, so the lake is 210 kilometers long. Multiple by a width of 10 kilometers and a depth of 1 kilometer and we get a volume of 2,100 cubic kilometers of water.”

“Hum. . . is that enough. . .”

“To put the sea back? I think it is. Consider how flat the old seabed was. Let’s say the old sea was only a hundred meters deep; the water would cover 21,000 square kilometers.”

“And how big is Eryana?”

Amos picked up his pencil again and wrote out the formula for the surface area of a sphere. “Hum. . . 90,000 square kilometers. So the old sea could have covered a quarter of this world. And I bet that’s about the size of the old sea, too.”

“And that would change the climate dramatically,” said Chris, who was watching. “This lake is several kilometers above sea level. Its surface is cold and very little water evaporates from it. What does evaporate would fall as rain and snow on the mountains to the east and west and flow back into the lake anyway. But the sea is at a low level, is

much hotter, and has much higher evaporation. If this lake were drained and the sea were restored, the rains would return and Era would be a much more fertile world."

"Then the legends about the great drought are right," said Amos.

"I think so. And we may know how to reverse it, too."

"If we can drain the lake without destroying Ora, which is probably impossible."

"We'll see tomorrow."

Chris barely slept that night. He lay in his sleeping bag, staring at the darkness of the tent around him, thinking about what they might have discovered. It was incredible to think that they had discovered the key to changing an entire world. It could make the lives of hundreds of thousands better, long term. But short term it could kill thousands and destabilize an existing climate and ecology. He knew little about ecology, but he knew that a sudden climate change would produce huge floods and kill existing vegetation quicker than the new vegetation, adapted to the higher rainfall, could spread. Who knew what that would do?

When the sky grew bright he rose and began to pack. Even Járchástár was surprised by Chris's eagerness to get going. Within an hour they were heading south in the alpine meadows above the treeline, where visibility was good and hiking easy.

They stopped only briefly for lunch, then continued on. About 4 p.m. they reached the Glugluba. They stood on its edge, looking down the glassy smooth walls to the lake below. They were hundreds of meters higher than the water; maybe a kilometer higher.

“The lake continues east for less than an hour’s walk,” said Járchástár. “Look closely and you can see the end.”

Chris squinted and looked down the glugluba. Sure enough, on the horizon he could see the gray of rock; the slide blocking it.

“Let’s get closer,” he said.

They stopped only long enough for Amos to shoot the slide with the surveying equipment and determine their latitude and longitude with the sextant. They had to stop several more times for additional measurements. Finally Chris got impatient.

“I’ve got to go look; will you catch up?”

“Sure, go!” said Amos.

Chris scrambled over the rock at the edge of the glugluba, looking down and forward at the same time, being eager and cautious at once. Járchástár came along. “You are a driven man,” he commented.

“Járchástár, this landslide holds the future of Era. When the landslide happened, it closed the glugluba. A river ran down the glugluba before, but the slide made a dam. The water backed up and created the Long Lake. But as the lake grew, the sea shrank. You see, the sun heats the sea and converts the water into an invisible form of water that the wind spreads, until it falls to the ground as rain. The rivers bring it back to the sea, and the sun puts it back into the air. When the Glugluba was blocked, the water could not flow back to the sea. So the sea dropped and Long Lake grew. Today the sea has shrunk to a small area, the water is all in the lake here, and much of the rain has stopped, so Era has become dry.”

“That is what you think? I wonder what Wɛrano has done,” he replied.

They had reached the beginning of the slide; the glassy smooth edge of the glugluba was interrupted by a gash that forced them to detour over rough ground. Occasionally they could look down the slide; it was a rough, rocky surface broken by cliffs and covered with small trees all the way down to the water.

Finally they found a rocky crag that gave them a view down to the top of the slide. It was rough, irregular, boulder covered, and dotted by trees. Chris moved to another crag and could see the part of the wild rocky surface that descended to the bottom of the glugluba; the face of a natural dam.

"God, that's a long way down!" he said in English.

"No one can go there," said Járchástár. "It is impossible. There are cliffs all over the surface of the slide."

"It probably is impossible," agreed Chris. "If we want to go down to the top of the slide, we would have to take a boat on the lake."

"That would be possible, but the lake has no boats."

"We could make a boat," replied Chris, matter of factly.

They stood, staring at the enormous mass of rock and earth that had slid into the glugluba some unknown hundreds of years ago. Chris estimated that the slide area was over 500 meters long, and the scallop in the cliff was 300 meters deep or more. Thousands of cubic meters of rock had let go and fallen in at once; it must have made an incredible noise. Slides were the major disadvantage of glubas; because they were artificially narrow and steep, they were easily blocked.

Amos, Sarésunu, and Modékvu caught up. Amos shook his head. "It's incredible! Absolutely incredible! Have you taken pictures?"

“No, I haven’t! I’ve been overwhelmed by it!” replied Chris. “But we can take pictures later.”

“Lots of them.” Amos pointed. “The other side is 551 meters away. Remember my calculations down by Ora? The Glugulba was always 35.6 meters wide at the bottom, and it gained exactly a meter of width on each side for every ten meters of depth. That means before the slide the Glugluba was 2,575 meters deep. About 5,000 *doli*.”

“Wɛrano be praised!” exclaimed Sarésunu.

“And it looks to me we’re five hundred or maybe a thousand meters above the water,” said Chris.

Amos nodded. “My surveying indicates the Glugluba is 380 meters wide at the top of the water, so the water is 1,720 meters deep.”

Chris smiled. “Then this water is the old sea!”

“Yes,” agreed Amos, smiling back.

“How high is the blockage above the water?”

“I tried to measure it, but it was difficult. I think there’s one spot where the dam is only fifty meters higher than the water.”

“If it’s rising half a meter a year, it’ll go over the top in 100 years,” said Chris. He pointed to the front of the slide. “There are several places where water is leaking through the slide, too. It looks to me there is even erosion by the moving water. This is not a permanent feature; it will probably break in a few decades or centuries.”

“Putting the sea back, and drowning thousands,” said Amos.

Chris nodded grimly. “I have no idea what we do now.”

“We must tell the Réjé,” said Sarésunu.

31.

Home

They remained at the Glugluba the rest of the day, taking photographs from every possible angle. Amos surveyed more points with his equipment so that he could build an elaborate, detailed map of it. The slide was so big and the glugluba so steep that one could not see the entire slide from any particular point. They had to walk two kilometers to find a spot where the base of the slide was more or less visible. Three “springs” where water was leaking through produced remarkably large cascades and waterfalls down the debris and into the forested bottom of the gluba.

The next morning they took an entirely new set of pictures with the sun shining from the east on the downhill face of the slide. Then a bit before noon they left, hiking straight north over the treeless alpine meadows to see whether there was a route they could take the rovers. It was probably possible.

They hiked until dark, then the next morning continued north until they reached the royal road. They followed it west to the rovers, reaching camp just after sunset.

The next day they drove east to Isurdhuna, visiting Isabella and her family overnight. The next day took them to Néfa, where they expected to find the Réjé; but her party had left several days earlier for Bɛllɛdha, north and east around the shoreline of the old sea. So after a night’s rest, they set out for Bɛllɛdha.

The land north of Néfa slowly grew cooler and drier as they went, and in a few hours semitropical broadleaf forest gave way to prairie, then temperate forest. Eryanɛ villages sprouted where the road crossed every creek, and cattle corrals bore testimony to

a principal source of livelihood. They reached Bɛllɛdha ("white rock") a few hours before sunset. The city of 5,000 people was well named; a kilometer north of the city, cliffs of limestone gleamed.

They stopped a man leaving the city and he said the Réjé had left that morning for Mɛddoakwés. So they did not stop; they had no contacts, did not know the city's lord, and had no letters of introduction. The city was walled, so they quickly drove around it.

In two hours they could drive as far as the Réjé's party could move in an entire day. It was sunset when they reached the encampment. Kwétɛru and Chris went to secure permission to camp across the creek; one never camped anywhere near the Réjé without permission. The General in charge gave permission, but did not give them a chance to meet the Réjé. So they had to camp across the creek and hope they could see her the next morning.

As Chris hoped, the Réjé was curious about their vehicles. The next morning as the royal encampment began to break up, the Réjé mounted a magnificent white horse and rode across to their camp.

"I should make you Lord Mennea some time," the Réjé said as she approached and spotted Chris.

He rose from the campfire and bowed. "I am at Her Majesty's service."

"Are you touring my kingdom, Mennea?" There was suspicion in her voice.

"We did, Your Majesty, after a fashion. A woman walked from Frachvàla, a village outside Isurdhuna, to Mɛlwika because she had heard of us and her mother was gɛdhémé. We drove her back to Frachvàla and met her mother."

"You went to Isurdhuna in these things?" The Réjé pointed to the rovers.

“Yes, Your Majesty. If it pleases you, I will give you a demonstration.”

She looked at the rovers, then at him. “It pleases me.” She dismounted. Chris led her to the nearest rover, which was still empty of people and gear. He opened the passenger door for her and she entered and sat on the seat. He closed the door and walked around.

“This opens the door,” he demonstrated how his door opened after he had gotten in and closed it. “But once we are moving it is very dangerous to open the door, just as one would not dismount from a galloping horse.”

“I am not a fool,” she said matter-of-factly.

He nodded and turned the key. The sound under the engine startled her a bit.

“Under the front is a machine,” he explained, Eryani having a word for “machine” but not for “engine.” “The machine moves the rover by using the power of fire. I can explain later.”

“Perhaps I will understand,” she added.

He put the vehicle in gear and they started down the road at a horse’s trot. The queen’s attendants followed along on their horses. He cranked down his window and she did the same.

“This is marvelous,” she said. He glanced at the speedometer; it registered only fifteen kilometers per hour. She looked back at her attendants, trotting behind.

“But Your Majesty, you see this?” He pointed to the speedometer. “As we go faster, the needle goes higher. As you can see, we can go much faster.”

“Oh? Make it so.”

He shifted to second gear and speeded up to thirty kilometers per hour. The Réjé looked back at the horses, which were now galloping.

“And your machine never gets tired?”

“No, Your Majesty. It requires maintenance almost every day by Amos, but he can do it at night.”

“How long would it take you to get to Mɛddoakwés in this thing?”

“From here? We’d be there by sunset, Your Majesty.”

“Really? My party will take five days. Amazing!” She looked at the needle. “Make it go faster!”

He shifted gears again and accelerated to forty-five kilometers per hour; fast for a dirt road. The vehicle began to bounce a bit, but the Réjé didn’t mind. She was excited. The riders began to fall behind; she just smiled at them.

He saw a straight stretch ahead and shifted again, pushing the speed quickly up to eighty kilometers per hour. She laughed and stuck her head out the window to enjoy the wind.

When the stretch ended he slowed. She looked at him. “Why are you slowing?”

“The road is becoming rough, Your Majesty. If the road were perfectly smooth I could go twice as fast, but it would be dangerous.” Just then he ran over several small holes in the road that almost threw the Réjé’s head against the ceiling.

“I see,” she said. “Turn around.”

“As you wish, Your Majesty.” He slowed down, then did a U-turn on the grass where there was a flat area and headed back. The riders were still coming, but more

slowly. They seemed relieved to see their queen returning safely. Once he passed them, he slowed so they could keep up.

"Honored Mennea, these vehicles could be of great use to my kingdom."

"Indeed, Your Majesty. I think in a year or two we will be able to build vehicles a little like these. They would be bigger and slower, but they could still go farther faster than a horse."

"You can make them?"

"Perhaps. We are working on it."

"No doubt Miller wants to make them," she said, a bit disappointed.

"Yes, he wants his iron foundry to make them. But I want to make something else, Your Majesty. I want to put the sea back in its old bed, and end the dry climate with bountiful rain."

She looked at him, unbelieving. "Are you claiming to be a god, Lord Mennea?" She used "lord" with ironic intent.

"No, Your Majesty. When we were in Isurdhuna we drove to the shore of the Long Lake in the mountains. We studied it and visited the landslide that blocked the Glugluba and made the lake. All the water that once was in the sea is now in the lake. I think it can be put back in the sea. I beg Your Majesty's indulgence while I explain."

"I still do not understand what you want to explain."

"If you give me some time, Your Majesty, I will explain."

"Since you have given me a chance to ride in your machine-wagon, I will grant you the time."

"Thank you."

They had returned to the campsite, so Chris stopped the rover and got out. Before he could go around to the Réjé's side she had opened her door herself and stepped out, looking pleased with the entire experience. Chris reached for his notebook and opened it on the hood of the rover. Its manufacture also interested her. He opened to a page he had prepared. "Here is a map of your kingdom from Mɛlwika to the Long Lake, with all the major cities."

"I can read your handwriting," she replied. "It is an excellent map. But I think Tripola is not quite in the right place."

"I have not been there, so I had to place it on the map based on what I was told." He pointed to a line. "This is the old shoreline of the sea. This area was water, about 600 years ago." With his pen he filled in the sea with circles of blue. She nodded. "Six hundred years ago, where Long Lake is now, was the Great Valley of the Eryanɛ. But the Glugluba draining the valley was blocked by a collapse of its northern side. So the river stopped flowing and the water rose, flooding the great valley and creating Long Lake. The lake is still rising to this day."

"But what does this have to do with the sea?"

"Your Majesty knows that when a cloth is wetted and put in the wind, soon it is dry. This is because the water becomes a part of the wind. Similarly, when the wind blows over the sea it picks up water. On earth we have studied this and discovered this is where the rain comes from. Now, when the glugluba was blocked, the rain that came from the sea and fell on the mountains stopped returning to the sea. So the lake grew bigger and the sea smaller. I think that is why, 600 years ago, the river at Ora suddenly shrank to a small size, the sea began to drop, and the rain stopped."

The Réjé was skeptical. “The Long Lake is too narrow to be as big as the sea.”

“It is narrow, but it is also very deep.”

“Hum.” She thought. “What do you want of me?”

“We may need your help to investigate and see whether there is an easy way to let the water out of Long Lake. Because if there is, the sea will come back. But some villages will have to move.”

“The ones on the old bottom of the sea.” She thought. “This idea of yours is just an idea. It cannot be proved.”

“Perhaps I can prove it, if I can show the blockage of the glugluba to your engineers.”

“Perhaps.” The Réjé was growing tired of the subject.

“Your Majesty, one reason I am concerned is because Ora is downstream of the blockage, and the river flowing past Ora consists of water leaking through the landslide. Eventually the flowing water will weaken the landslide and it will collapse. When that happens, a wall of water over 1,000 doli high will sweep down the Glugluba and Ora will be destroyed.”

She looked at him, startled. “And now you are a widu?”

“I do not have to be a widu to say this. Your engineers can go look. We saw the landslide blocking the Glugluba and with our surveying equipment we measured it. Longlake is 3,700 doli deep. We saw the water leaking out.”

She stared at him and did not speak for half a minute. Thinking. “Honored Mennea, you are a man I cannot understand. You have these *rovɛrs* and many other amazing abilities, and you care for others rather than wanting power. You are like my

daughter, Awstɛr, who takes care of the sick; but she does this because she is a woman and can never have power, while you can. You are like Gawéstu the widu in that you know, but you do not know because Esto speaks to you; you just know. You are like Millɛr with strange ways, but you are not arrogant. I do not understand you. Sometimes I have people I do not understand killed; it is safer that way."

Chris paused a moment to consider his answer. "Your Majesty, I am telling you the truth as I understand it. I know things because on Earth we have learned how to study and understand them. I do not seek power because Bahu, the great widu I follow, forbids it. Bahu also commands charity. My family and I seek to make our knowledge and ability available to you and your kingdom. On this trip we have seen a great danger to one of your cities. It will take all the knowledge we have, and all the power you have, to protect Ora."

"Your knowledge and my power." She thought about it. "Let us talk further in Mɛddoakwés."

"As Your Majesty wishes."

The Réjé looked at Chris's map one more time, then turned away. She mounted her horse and rode back to her camp.

Amos and Thornton came over; the others gathered more discreetly. "How did it go?" asked Amos.

"I don't know. She said we should talk more in Mɛddoakwés."

"That's good," said Sarésunu. "This is too much for her to comprehend all at once."

"I think you're right," agreed Chris. "Let's pack up and hit the road."

Everyone started to grab their items and stow them in their predetermined place. In fifteen minutes everything was ready to go and they drove off, fortunately before the royal caravan departed.

The royal road was a rough dirt surface, just like elsewhere, driving through drier and drier land with few creeks or dry riverbeds. It wasn't until mid afternoon, when they were approaching the Arjakwés, when they noticed some increase in moisture. About then, coincidentally, it began to rain as well.

They abruptly reached the intersection with the Arjakwés road at a nondescript village about fifteen kilometers from the ruins of Lilalara. The road was getting wet from the rain, so they had to proceed more slowly than expected.

It was dark when they passed Mɛddoakwés, but they continued up the familiar road with their headlights to Mɛlwika, where they received a tumultuous welcome and a feast.

They spent the evening passing printed photos around and explaining them to most of the village. Few had been beyond Mɛddoakwés and were fascinated to hear about as exotic a place as Isurdhuna. Most were also interested to hear about the Glugluba. When the party ended it was too late for serious talk, so everyone went to bed. After breakfast the next morning, more serious discussion was possible.

"Let's go around and summarize what we've been doing, so everyone is caught up," suggested Chris to the entire group, which included all the Menneas and the Eryanɛ who worked for the Génadɛma. "Our exploring party was away for three and a half Eryan weeks; a lot has happened during that time." Chris turned to his wife. "Do you want to start?"

"Sure," said Liz. "I've spent the last three weeks handling two matters. First, the garden; Pɛrku suggested we plant some winter crops, primarily peas and carrots, so I hired some people to plant two hectares in the vegetable garden, where the soil didn't need to be plowed. Both crops are up and growing and should give us a nice supplement. Second, our good Lord Miller has stopped by almost every day over the last two weeks to find out when you would be back, and was complaining about the delays. He's looking particularly for you, Amos; he's got all sorts of ideas."

"Like what?"

"Well, it's getting cooler, so he wants heat for his house, and while you're at it he'd like piped hot water, too."

Amos laughed.

Chris turned to his mother. Mary smiled. "Well, I've spent the last three weeks keeping myself alive! But I've done a few other things, too. I've given Lord Miller quite a few cups of tea and made him feel welcome; cooked at least one meal a day for all of us; watched over the household and our one servant; and watched the children a few times, or maybe they watched me."

Behruz was next. "I've also dealt with Lord Miller a few times, first as honorary mayor of this place in Amos's absence. Five more families have moved in and there are five or even ten more considering a move here. We've issued deeds for five building lots and all five buildings have been started; when you go out to the plaza you'll see them. I had quite a fight with Miller over the fees because several of the people were able to pay only part, and he doesn't like IOUs. Then there have been the problems with water. I've stopped at Moritua every week on my way back from Mɛddoakwés to check the lake's

water level and hear the Lord's complaint that Miller won't release enough water. Moritua has been going up, but normally it's fuller this time of year. Meanwhile, our reservoir was rising about a meter a day. Two days ago I defied Miller, walked up to the dam at sunset and cranked up a penstock. Now the reservoir is dropping at a meter a day and Moritua is getting much more."

"That's what I had to do once or twice," said Amos.

"How is the class with the surveyors?" asked Chris.

"It's going well. I went there once; they came here twice. We reviewed minerals and I taught them a bit of introductory chemistry in my lab. My lab work has gone pretty well on the weekdays I'm free. The methanol still has been running almost continually and I've probably made as much methanol as you burned. I've also been making more ammonium nitrate fertilizer; we've got a hundred kilos of the stuff stored in the barn. I've made more sulphuric acid for the batteries, too. I'm now in the position to make storage batteries for an electrical system, if we want one."

"Good. Lua?"

"The clinic was pretty busy with an outbreak of pélui in Bolériplúdha," she said, referring to a disease resembling cholera that caused severe diarrhea and vomiting. "I had twelve patients at once. Most stayed at home; one was so serious I brought her here. No one died; fortunately I was invited down to help heal them when the outbreak began. I told everyone to boil their water and wash their hands, and enough people did some of it, I guess. Now kids are being brought in because of worms and teeth problems, so it looks like Bolériplúdha has accepted the clinic."

"Any payments?" asked Chris.

"Most patients gave us a bushel or two of grain."

He looked at May, sitting and looking very pregnant. "I went to the scribes' class and to the philosophical class; twice a week to Mɛddoakwés, in spite of my condition. The classes went pretty well. That's all I managed; I had to rest an entire day after each trip. Thank God Diné has been helping with the women's class. Behruz and Liz gave the class to the soldiers."

"Oh, that continued?"

"Yes. Pɛrku wants to write a military manual! He thinks it might get him a promotion."

"Good for him," said Chris. "Well, it's my turn. I just led an expedition and figured out why Era has dried up, and I need to spend the next few weeks figuring out what we should do with the knowledge." He turned to Thornton.

"I've been busy on the expedition taking pictures, logging all position measurements and odometer readings, and writing up a detailed daily summary of what we did and saw. In the next few weeks I need to get all that cleaned up and printed, so we have a permanent record. I also have to get back to the classes I was teaching, and May owes me a grade once I submit a paper on the geography of Era."

"I'm looking forward to it," she replied.

"It sounds like I have my future work cut out for me," said Amos. "Miller probably has several weeks of ideas for me to pursue, so I hope Behruz can continue to serve as Mɛlwika's honorary mayor. The big task I have now is tearing apart and cleaning the engines of both rovers, because they took a real beating on this trip."

"You didn't say what you just did for three weeks, but I think everyone knows," said Chris. "Lébé?"

"I was the cook and washerwoman on the expedition, but when we were in Frachvàla I was able to learn some Eryan poetry that I had never heard before, and I heard stories about Widumaj that I have never heard here. I took a few notes, but I think I should write them down as well as I can. I want to write descriptions of the holy places in Isurdhuna, also; people will be fascinated, especially when they see the pictures."

"Good idea," said Chris. "Sarésunu?"

"I was the chief surveyor and geologist on the trip and now I want to get as much of the information we collected as possible and add my own memories to it. I can take all this to the surveying class, right?"

"Absolutely," agreed Chris. "We want the Réjé and her engineers to know and have access to our information. Otherwise they may hear about it and think we are spies. I suggest you give the surveyors' class for the next few weeks and go through everything we saw and did; even the sightseeing. Most of them will enjoy the stories."

Sarésunu nodded. Chris looked at Mitruiluku. "I was a sightseer on the trip but I learned a lot. Sometimes I learned things I already knew as a child, but I didn't realize their importance. Now I want to write down everything I know about the Western Shore: its history, poetry, legends, everything. There are stories about the Eryanɛ villages in the Great Valley before it became Long Lake. There are stories about the destruction of Ora when it was a Sumi city. There are the stories about the Sumi wars, the Sumi captivity when they controlled all the western shore, and the conquest of the Sumi. Maybe I should write a big book about it all."

“That’s a great idea. Kwétɛru?”

“I was a sightseer as well and I wrote on the trip, but now I want to write even more. The dictionary still needs huge amounts of work and I want to start a Sumi dictionary, too. I don’t speak Sumi well enough to produce a good dictionary, but even something simple will help. Sumi has sounds Eryani doesn’t have and will need special letters.”

“We can work on that,” said May.

“The most important discussion we can have is what to do about Long Lake,” said Chris. “Amos, do you want to show everyone the map?”

“Sure.” Amos put a map, made of two A-4 sized sheets, on the table. Everyone leaned over it. “The Glugluba is 36 meters wide at the bottom and 2,575 meters deep at the point of the blockage. The landslide is a side of the gluba 634 meters long that broke loose and fell in, making a pile of broken rock and dirt 1,782 meters high. I think there were natural faults at the east and west ends of the slide that produced zones of weakness; the river on the bottom probably had undercut the cliff, causing the collapse. By the way, this is not the only slide in the Glugluba; our guide told me there are two or three more that have created barriers several hundred meters high, and all of them have reservoirs backed up behind them that are slowly eroding the dams. The Glugluba is and will be a source of chronic flooding. Mitruiluku says there are legends of at least three big floods.”

“Ora has been destroyed three times?” asked May.

Amos nodded. “The city needs to be moved; simple as that. Our options are rather limited. We can do nothing and wait for the big slide to fail under the pressure of the rising water behind it. It will flush the entire glugluba free of debris, removing all the

other three slides in the process. It will probably create a half dozen more slides by its incredible erosive power and remove them as well. The result will be a wider gluba, less prone to blockage. Our second option is to create a spillway, but I doubt that will work long term because the water, falling 1,720 meters, will do a lot of erosion and probably would get away from us. That means we would have caused the collapse, but not at a time we could predict. We might be better off simply blowing up part of the blockage and letting it go, after warning the city of course, because at least that way we will know the flood is coming and can get everyone out of the way."

"But could we, really?" asked Liz. "This is a society with no history of coordination on that scale."

"I know," said Amos. "I'm telling you the options. We cannot drill a tunnel through solid rock around the slide at its bottom because the research I've done suggests there are no steel alloys strong enough to stand up against that kind of pressure or against water moving that fast. We would have to drill tunnels about every two hundred vertical meters and let the lake out two hundred meters at a time. The danger is that the quantity of water we'd have to let out is guaranteed to destroy the downstream slides, causing smaller floods that would still destroy much of Ora. And any of the tunnels could erode and produce a catastrophic collapse of the entire slide. Finally, there are the problems of cutting a large-diameter tunnel through six hundred fifty meters of solid rock in a remote and inaccessible location with very primitive technology, and without knowing when you might break through into the reservoir at the other end, instantly drowning the entire work crew."

"Daunting challenges," said Chris, with a forced grin.

"Of all those choices, blowing up the slide sounds best," said Liz. "It guarantees destruction of Ora, but at least at a time when you can prepare. And it probably cleans out the Glugluba."

"But it causes an ecological catastrophe," pointed out Chris. "The old sea would be reconstituted in a matter of days, drowning all existing shorelines and their plants, probably killing all the fish with silt and rapidly changing salinity. The sea would be virtually sterilized. Then the microorganisms would come back in a huge bloom. Fresh water fish—if Era has any—would have to readapt to live in the sea. All the land plants would suddenly find themselves in the wrong climatic zones. The sudden increase in rainfall would cause vast floods. Agricultural productivity would be severely diminished. Eryan civilization could be destroyed by the recreation of the sea as surely as Sumi civilization was destroyed when it dried up."

"But what you've just described will happen in the next century or two, whether we act or not," said Amos. "Because that landslide is going to collapse. That is guaranteed. What we don't know is when it will collapse."

"This disaster is bigger than we can handle and bigger than the Réjé's bureaucracy can handle," exclaimed Thornton. "There's really no option we can pursue. Only the aliens can handle it. And they are under some kind of ethical obligation to help, since they put us here."

"But can you convince them of that? No amount of convincing has worked yet," said Chris.

"I think we have moved them somewhat," replied Thornton. "Maybe we can convince them."

“You’ll have to try,” said Lébé.

“But we need a plan first, and I don’t think we have one,” replied Thornton. “We could probably cut a long canal through solid rock and make a reliable spillway more easily than anything else. Maybe the three downstream slides would wash out, but the floods would be smaller than the big one.”

“But then we would have to be in the business of repairing the main slide against erosion caused by the water seeping through it,” said Amos. “The main slide, left alone, will wash out eventually even if the water never flows over the top.”

“This requires a lot of thinking, my friends,” said Chris. “I suggest we resume this discussion again tonight or tomorrow. We need to talk it through many times.”

They all headed off for their jobs. Amos went out to see the enclosure south of their house. With five more buildings nearing completion, the enclosure now had 30 out of a possible 59. The various alleys could now be traced. The spot of the future Génadɛma was becoming a large hole as clay was dug for bricks.

He walked out the North or “Gluba” Gate and over to the iron foundry. Yimu was busy working on the rolling mill Amos had designed and started a month ago, before circumstances took him half way around the world. It had a bed onto which liquid iron would be poured; once it solidified enough to hold its shape the bed could be tipped and the slab worked free with iron tools and slid to the roller, which would go back and forth over it, squeezing it. The roller was now almost ready to put in place; several tons of iron alloyed to make it harder and raise its melting point.

“Wow, this is coming along very well!” Amos said.

“I think it is ready to be raised in place; we’ve been making the chains according to your specifications.” Yimu pointed to a very heavy chain on the dirt floor nearby.

“Excellent. Now we need the waterpower to roll a three-ton roller.”

“We’ve made the other turbine blades based on the one we finished before you left. They are very exact; I think you will be pleased.”

“Good; I’ll look at them later. Have you tried the casting technique?”

Yimu pointed to a spherical iron structure nearby. They walked over; it was a steam boiler. Amos smiled.

“This looks great! Have you checked it for defects?”

“We’ve looked it over carefully and it seems clean of cracks, but we haven’t closed it up and boiled water in it. We still need to put the screw threads on it and don’t have equipment for that.”

“That’s one of our next steps; making a machine shop. And the copper wire?”

“Jɛrgu has gotten very good at making wire from copper bars; he can make thirty or forty meters a day. We have made a lot, but from what you said we’ll need a lot more.”

Amos smiled. “We’ll never have enough wire, Yimu! Trust me about that.” He looked around. “Everything looks in order. Everything has gone well.”

“Yes. Isurgénu, the royal metalsmith, came by and complimented us on the quality of the iron. They want to double their order. Apparently the ironmakers in Mɛddoakwés are upset.” Yimu pointed to the rolling mill. “Isurgénu looked at this and said it was a waste of time and effort.”

“He has no idea what one can make, when one can roll iron and steel. The product is stronger and more uniform in quality. When he sees what we can make, he will change his mind.”

“Father wants to know when we can get it started and I keep telling him I don’t know.”

Amos looked at the machine more closely. “We can get the roller in place next week, don’t you think? But rolling the roller back and forth will require the work of five horses or twenty men until we can get the turbine making electricity for us, and until we can make an electric motor here to convert the electricity into work. I bet we can get the turbine and electrical system working in two months, if I have no interruptions. How’s the dam, by the way?”

“The rain yesterday has raised the water level again; it was dropping. The dam is fine. Father goes up every day or two to set the opening. By the way, he is looking for you. He does have another project for you.”

“I heard. I guess I should find him; where is he?”

“Probably in the house.”

“Then I’ll look there. See you later.” He waved to Yimu and headed out of the foundry. Yimu, obviously, was doing a good job of running the place; he was smart and restless to do things in new ways. It was the Miller way to be a bit rebellious.

Amos walked back to the Miller house and entered. The dark corridor took him into the main courtyard, and Miller was there counting money.

“Good morning, Lord Miller,” Amos said in Eryani.

Miller looked at him puzzled and switched to English. “Damn formal, after being away for three weeks. I gather the trip was a success and Eva is home.”

“Yes, and we got to meet the Lords of Anartu, Ora, Néfa, and Isurdhuna, plus quite a range of characters. You heard about the Glugluba and the grand landslide?”

“Oh yes. I was there last night for the pictures. I’m glad I don’t live in Ora. Chris is crazy to think he can do anything about the situation. Trying could just embroil him in the politics he so assiduously avoids or get him killed. Believe me, this is an impossible problem.”

“Chris knows, and I think he’s not sleeping because of it. I don’t think we’ll try anything any time soon, either, because we aren’t in the position to do anything and the danger isn’t immediate. I just went up to the iron foundry and talked to Yimu. I think we can start trying the rolling mill in a week or so, though we won’t have any electrical power to roll the roller and will have to hire men or horses to pull it back and forth.”

“How long to get electrical power to it?”

“Two months if I have no interruptions.”

“I see. Maybe you heard about my little project. I don’t want you to start making a heating system for the house in two months. We’ll need it in two weeks.”

“I’m sure. Of course, these buildings are not designed to hold in heat.”

“They don’t have to hold it too much; it doesn’t get that cold. What I want is a big pot-bellied stove that we can keep full of wood. Attached to it, a big enclosed water boiler and some pipes to carry the steam or hot water to the top floor, then circulate it back down. It’d be nice if we can heat the entire house with one or two of them. I suppose a boiler to make hot water for washing would have to be separate.”

"It would be better, because the two hot water systems do different things. I can design something in a few days, but it will take Yimu or Tritu or someone, with the help of another person and my daily supervision, a month or so to make the thing you describe. And we need to get the rolling mill working first; it'll help a lot."

"Okay, get the rollers going and I'll tell Yimu to hire the men or horses to roll it. Then make me this heating system, Amos. That's the priority, even over the electricity."

Amos was surprised and obviously disappointed. "Okay, you're the boss. I can understand after thirty years you'd like a little comfort."

"Not just comfort. I want a system that works well that we can sell to the palace. Your family just toured much of the world and met most of the Lords. Let's make them something they want to buy from us."

"Oh!" Amos was surprised. "Alright. Heat is easier to explain than electricity."

"Damn right! We can make a pile of money and build some important contacts with central heating. But we can't do that in two months; the cold will be over. I want to get started this winter."

"Fine. I'll get started right away. Talk to you later." Amos turned and left.

Thornton and Lébé were glad to be home at last. After breakfast they went off to do their chores. Thornton tried to contact Philos, but had no luck; his call was put in a voice mail box, which certainly seemed like a strange way to contact an alien. He sent an e-mail to Philos as well. He hadn't heard from the graduate student much in the last three weeks; he'd received one forwarded e-mail, from an alien researcher asking whether Thornton

could perform a psychological experiment on several human children. It had to wait until the trip was over.

About noon he needed a break, so he found Lébé and they quickly made sandwiches—a terrestrial innovation that Mɛlwika had adopted—and walked over to the farm to check it out. When they got back Amos had finished changing the oil in one of the rovers, so they drove it up to the Péskakwésgluba. The Péskakwés was flowing nicely because of the steady rains of the day before. The gluba was pretty and the circular field at its mouth was green with lush grass.

As they drove back to Mɛlwika the phone rang. Thornton picked it up. "Hello?"

"Hello Thornton, this is Philos, returning your call. How are you?"

"I'm fine! How are you doing? As you know, we were on a trip to Isurdhuna, so I was not able to carry out the e-mail you sent to me."

"Oh, yes. The request came from a friend of mine. He'd like a response in three or four weeks, if that is possible."

"I'll show it to May and see what she says. How's your writing?"

"It's going well! I'm on chapter 1 of 8. It'll be done in a few months, I think. Then I have to present it, and anyone can come and dispute with me. I'm worried about a few people who are likely to comment."

"Ah, you'll do fine. Say, Philos, I wanted to talk to you about our trip. You must have seen the photographs I stored?"

"I did; I assumed I could look at them. The views of the Eryanɛ cities were fascinating, especially those of interiors. But I didn't make them available to anyone else. You can sell them as a service to us, if you want."

“Maybe I will. Did you see our photos of what is called the Glugluba; the great artificial cut your people once made to drain a deep rift valley in the center of the highlands?”

“The one that is blocked by the enormous landslide? Yes, I saw them.”

“We are extremely worried because when that slide washes away, it will destroy Ora and the entire marine ecology. The flood of fresh water will restore the sea in a short time and kill all existing marine life. It will also drown all coastal marshes.”

“Yes, that would happen. We would then restore the marine species, once the sea had stabilized again. It would not be difficult for us.”

“You would save the marine life, but not the human life? What about Ora? It has ten thousand people!”

Philos did not answer right away. “Our position historically has been to stay away completely from human society. With your family there, our policy has changed somewhat; but I doubt we would interfere to the extent you’re calling for. Certainly, I couldn’t make a decision about that.”

“True, you couldn’t. Philos, let me ask you this as a friend. What do you think we could ask for? Do you have technology that could open the Glugluba without causing a terrible flood?”

“I’m sure we do, but I doubt we could be convinced to use it. And I think it would be difficult, even for us; the water is very deep and under enormous pressure.”

“Philos, why didn’t you tell us about the Glugluba when we asked you about why this world dried up?”

“I didn’t know. I really didn’t! I’m sorry, Thornton, but I am a sentientologist, not a geologist or natural historian. I need to focus on my thesis right now, which is about a group of modern humans in a non-modern human society. I intentionally have not studied the history of this world because to answer your questions, to some extent, is to interfere in my own research.”

“Philos, you and your people care more about your research than about the *things* you are studying! We want partnership. We don’t want to be specimens! Does Fate encourage you to reduce intelligent creatures to the status of objects?”

“No it does not, and I am sorry if it sounds that way. Thornton, I just can’t answer your question. I’m not authorized. I suggest you keep talking and asking. If you have a specific plan to propose, a specific thing to ask for, it can be considered. But if you aren’t specific, we can’t be either.”

“True, but Philos, it’s hard to be specific when you don’t know what to be specific about!”

“I know. I’m sorry. I’ll do some thinking about this, too, and see whether I have any ideas.”

Thornton realized that was the best he could get. “Okay, thank you, Philos.”

“You’re welcome, Thornton.”

“Goodbye.”

“Goodbye.”

32.

CONSTRUCTION

Chris sat hunched over the dining table, adding up his figures one more time. Amos looked closely over his shoulder; Liz and Thornton, who happened to walk by, watched as well. Finally Chris nodded. “That’s right; 33 lɛdhay, 18 dhanay, 10 dontay, or 4,770.5 dhanay. That’s our worth right now, more or less.”

“That’s a lot!” said Thornton. “Isn’t it? A silver lɛdhay consists of 144 dhanay, right?”

Chris smiled. “That’s right. A silver lɛdhay is one lɛdhi or about six kilos of silver; it’s a lot of money anywhere. A ‘dontay’ is a little disk of ivory, as the name implies. Twenty are worth one dhanay. A typical farmer plants 10 agris—3 hectares—of land every year with wheat and he harvests about 75 bɛrwonis—bushels—of grain. Each bushel weighs 3 lɛdhi and earns him about 12 dhanay if he sells it. He pays his taxes to the Réjé and the local Lord; 25 bɛrwonis. Some Lords charge another ten percent, or 7.5 bɛrwonis. The remaining 42.5 bɛrwonis will feed him, his wife, and three children, and leave about 7.5 bɛrwonis. If he sells it he’ll get 90 dhanay, with which he can buy knives and other tools, cloth or cotton for making clothing, a pair of shoes, maybe a gift or two, and a few jugs of wine.”

Chris pointed to his figures. “But here’s what we did. We planted 6 hectares the first time and harvested 125 bɛrwoni of grain. The second planting was 9 hectares and we harvested 270 bɛrwonis; much better because we fertilized and prepared the ground properly, and irrigated. We paid 100 bɛrwoni in taxes to the Réjé, not 132 that would be

the customary third, because we paid in flour rather than in grain, and Miller ground it for us for free in return for the rovers' help on his 30 hectares of farmland. He didn't charge any tax as Lord; he also paid us 30 bɛrwoni of flour for help with the irrigation ditches and to buy some fertilizer, so we actually paid 70 in taxes. So we have 325 bɛrwoni of grain in storage. Feeding the 11 in the Mennea clan will cost maybe 70 bɛrwoni, so we have about 255 to play with. They're worth 16 dhanay each as flour, and Miller will grind them for us for free if they're ground during slack time. So they're worth 4,080 dhanay; 28.33 lɛdhay. In addition, we have 690 dhanay of coins on hand."

"And a man is usually paid a dhanay and a quarter a day," said Amos.

Chris nodded. "Well, it goes up and down a bit, and many want to be paid in grain because they want food, not coins. I'd pay 15 akménis or 1.25 lɛdhi of grain per day; you can feed a family on that. Or I'd pay a 1.25 dhanay and throw in a 2 dhanay bonus every week for good work."

Amos looked concerned. "You realize that if you pay a bonus, Miller will have to as well, and he will be furious. So I suggest you rethink that."

"You're right. I wish we could get basic wages up; 1.25 dhanay will keep a family alive, but that's all. I'd also like to pay literate men more, to give them a monetary incentive to learn to read, but right now there is no one who is literate!"

"Then add a class to their work schedule and give them a bonus for attending," suggested Amos. "Here people work every day of the week, even though Widumaj called for no work on the first day. Why not give them a class on the morning of the first day and the rest of the day off? And give them the bonus that day."

Chris nodded. “Or better: give them a gift for attending the class. We better not get people in the habit of being paid to learn. That’s a good idea! Maybe I should pay them 6.25 dhanay on Pɛnkudiu for five days’ work, then give them one dhanay on Suksdiu for attending the class plus a one-dhanay bonus if the quality of class work was good. If we teach letters and numbers, can that make them more efficient workers?”

“Yes. We can label items, put up some simple signs, and if they understand concepts like cubic doli and some basic science it will help. I can work with Thornton and Lébé to plan a curriculum.”

“Good; Lébé has some good ideas about how to make the learning fun,” said Chris. “The school building we want to build will cost 500 dhanay; we’ll have to hire ten stone masons and carpenters for about 4 weeks, and the lumber will add 120 dhanay to their 380 dhanay of salaries. The lumber’s a lot, but it’s much cheaper than hiring men to make iron nails on site, nail or peg unmilled logs together, and saw logs into boards only as needed. I figure 1,200 dhanay more could build a respectable dam on the Péskakwés for us and another 1,000 to dig some irrigation canals, guaranteeing a water supply to our land and allowing us to double our area planted and get three harvests per year.”

Thornton whistled. “So, we can spend half our money and put ourselves in the position to make even more!”

Chris smiled. “That’s about the size of it! In an agricultural economy, rovers equipped with plows and threshers can make one rich as long as they last. The Miller clan’s fortunes have been revolutionized even more because they have over three times as much land under cultivation as we. Even without the profits from the foundry, Miller’s

raising enough food to feed his family plus 11 or 12 full-time workers. That's a lot of construction, or horses, or luxury goods, depending on what you spend it on."

"That's why they've gone from having no spare clothes or blankets to having spares," noted Thornton.

"And they're pouring money into the dam and foundry, which will make even more," added Chris. "Thornton, in the next few days I'd like you to walk the land east and north of our farm, locate the natural gullies and watersheds for irrigation ditches, and make me a little map. I want to stake a claim. No one uses or owns the land, so why shouldn't we claim it? I'm going to make the claim with the Réjé, too, as well as with Miller. I want to claim the land all the way up to the Péskakwésgluba because I want a water and irrigation claim. Amos, in your spare time, figure out as well as you can how much water we can store in the Péskakwésgluba and how much of it we should release for Moritua."

"That means I have to design a dam."

"Can you do it?"

"When? I'm fixing rovers, overseeing dozens of details at the foundry, running the dam, finishing the work on the turbine blades and generator, and setting up Miller's heating system, not to mention handling a few requests from the royal engineers."

"Hum. Why don't the three of us go up to the gluba this afternoon for an hour and you can show Thornton and I what needs to be done. He knows surveying and I can make maps. We'll do most of the work and you can oversee it. I feel some urgency because the rains have started and the water's flowing."

“Which also means building a dam will be difficult. But yes, I can go up with you in the late afternoon.”

“We still haven’t spent most of our money,” said Thornton.

“You don’t spend it all right away, son! But don’t worry; I’m sure we’ll be able to spend it. And we’ll need to spend some of it on charity; the equivalent of huqúqu’lláh.”

“Nineteen percent of the surplus,” said Thornton.

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Later that afternoon they drove up to the Péskakwésgluba. A dirt track was fairly well beaten down by the rover’s regular run up to the gluba, but Thornton took his father and Amos on a quick detour. He had already driven and walked the area in previous months and knew the lay of the land well. He had spent an hour earlier in the day exploring the area again. Rather than driving due east to the gluba, twelve dɛkɛnt—4 miles—up the Péskakwés, he started by driving due south across the rolling brush land beyond their fields.

“If we’re serious about making a claim, I’d consider claiming the entire stretch from the Péskakwés to the so-called Tɛrsakwés,” he said.

“Funny name,” said Chris. Tɛrsakwés meant “Drywater.”

“It starts in the Spine Mountains 180 kilometers west of Mɛlwika,” said Amos. “I understand it gathers several tributaries together, but it dries up before crossing the Western Desert and carries water as far as Moritua for a week or two every few years.”

“That’s a big chunk of land; maybe eight kilometers by six,” said Chris. “There’s no way we could use it all, and we can’t water it with the Péskakwés.”

“Then let’s at least make a claim as far as this dry wash.” Thornton pointed to a gully ahead of them. He stopped when they reached it; it was six meters below the land surface and about fifteen meters wide. He had driven about three kilometers south from the Péskakwés.

“Where does it come from?” asked Amos.

“More or less toward the Péskakwésgluba. I’ll show you.” Thornton turned the rover west-northwestward and began to follow the gully from a dozen meters of distance. He went slowly because of the branches and dead tumbleweeds on the ground. In ten minutes the ground rose a bit—otherwise it was slightly rolling and uninhabited—and he headed up the slope a few meters from the gully. The rolling hill flattened out to a crown, revealing that they were only a hundred meters from the gluba.

“Oh, I see where we are!” said Chris.

“If the dam across the gluba were high enough, water could be brought to this gully through a pipe and a canal,” said Thornton, and he drew a line around the hills to the dam site with his hand. “Then a lot of the land here could be irrigated.”

“It’d be good for cattle grazing, especially with a bit of irrigation,” noted Amos. “And cows would let us make a claim to a big chunk of land.”

“We’re not going into the cattle business,” replied Chris. “The Tutanɛs could take all our wealth in one night, or constantly extort cattle from us for every little thing we want. Remember, we’re on the frontier of civilization.” He pointed at the gluba. “Let’s go look.”

Thornton put the rover in gear and slowly picked a route down the steep slope to the grassy bowl below. Amos noted that the big, circular area itself could be flooded by

building a small dam downstream, but Thornton objected on aesthetic grounds. They drove across the bowl—which had animal droppings scattered all over it, because both wild and domestic grazers were often found there—to the mouth of the gluba and got out of the rover.

"This is a cute little gluba," said Chris, looking at it. Like all glubas, its walls were smooth and sheer.

"Yes," agreed Amos. "Because either Thornton or I have been driving up here almost every day for over half a year to take a measurement of the water flow, we know the Péskakwés is consistently about a quarter the size of the Arjakwés. If the Arjakwés really carries forty million cubic meters per year, the Péskawés must carry about ten million."

"That's a lot of water. How much land can you irrigate with that?" asked Chris.

Amos thought. "The rule of thumb I learned was a cubic meter per second can irrigate about ninety square kilometers of desert, and the flow of the Péskakwés averages a third of a cubic meter per second. We have rainfall to help, too."

"But we have to pass a lot of the water on to Moritua and Mɛddoakwés," said Chris.

"I think we could irrigate three or four square kilometers and pass the rest of the water through to downstream communities, and no one would notice a diminishment of flow. That's twenty times more than we're irrigating now."

"Four square kilometers; four hundred hectares, which is 1,350 agris. That's land for 150 families. A dam here can allow quite an impressive village."

“Are you thinking of selling land to peasants? Do you think we should get into that business?” asked Thornton.

“Selling or renting; I’m not sure which. And yes, I think we should get into that business. We need a cash flow to build up a school, and the best way to get one in this society is to rent land. And there’s safety in numbers; if this place has a couple hundred families we’d be safer from the Tutanɛs. Finally, the génadɛma will be more effective if there’s a population nearby to take its classes.”

“But isn’t the system here pretty exploitative of peasants?” asked Thornton.

“Of course it is. It always is, in societies like this one. But that doesn’t mean we have to be. We can take the same percentage of the crop as the lords do, but if the crop is one third bigger because of improved techniques or mechanization, the peasants will still have one third more.”

“It isn’t clear who ‘owns’ the land,” noted Amos. “I gather most of the land downstream of Moritua is considered to belong to the lords or hereditary aristocracy.”

“I think that’s right,” agreed Chris. “I bet most of the real estate in Mɛddoakwés is owned by the rich and rented to the poor as well. But no one has legal title to farmland. I suppose the lords are considered the owners of the land, so we probably could give peasants legal title to their fields, for a higher fee. We’ll have to consider this carefully.”

“Your plan will take a lot of our time,” said Amos. “We’ll be demonstrating our principles at the same time we teach them, and inevitably someone will dislike the result.”

“True enough. But I don’t think we should claim altruistic motives; just that we need wealth, like everyone else. Our private ethics are our business.”

“What will Miller say?” asked Thornton.

Chris smiled. “He’ll do the same. The Arjakwés has lots of spare water now and he has an extra 1,500 agris that can be irrigated between Mɛlwika and Nénaslua. I’m sure we’ll see him digging canals.”

“And asking for the rovers,” added Amos.

Chris shrugged. “Have you figured out how big a dam we need for our land?”

“No, but in half an hour of walking upstream I can make a rough estimate.”

“Let’s do it,” said Chris.

They walked up the gluba. It was remarkably deep; perhaps three hundred meters in the middle, because the mountain ridge had barely a small notch in it that the aliens had deepened. On the other side of the ridge the ground was rolling and widened out into a hilly, sloping plateau. Two gullies joined near the upper end of the gluba; one came from the east and ran along the base of the ridge, while the other, smaller gully flowed from the mountains to the north.

“The landscape here is very different from the Arjakwésgluba,” said Amos, after they had walked around. “The Arjakwés heads straight uphill to the north and the low area on the upstream side of the gluba is small, so we needed to build a high dam to create a reservoir capable of storing a year’s worth of runoff. But here I think even a low dam—ten or fifteen meters high—will back up a big reservoir. We can easily build a dam to store all the water the Péskakwés can give us.”

“Good,” said Chris.

“It occurs to me that’s very good,” added Thornton. “Let’s say the mountains get unusually heavy rainfall and the Arjakwés reservoir fills up and starts to pour lots of

water downstream. If that happens, we can turn off the Péskakwés completely and let even more water accumulate here, and count the extra flow from the Arjakwés toward the quota for the Péskakwés."

Amos smiled. "You've grasped the basic idea, Thor! I'll tell you what we need here. Bring Sarésunu with you and the surveying equipment. Map this whole area in terms of altitude. Then figure out how much water storage we get if we build a dam three meters high, six, etc. I bet a fifteen-meter dam gives us more than we need."

"How much storage?" asked Thornton.

"Let's aim for five million cubic meters."

"Let's have the map in about a week," added Chris. "Who should I talk to? Wɛranolubu of Béranagras and Nénaslua?"

Amos nodded. "Yes, he was really good at coordinating the workforce. If we tell him we want fifty workers, he'll hire them for us. And he knows how to build a dam like this; he was involved in every phase of the dam on the Arjakwés. Even Miller said he'd hire Wɛranolubu to finish the Arjakwés dam."

Chris considered. "Okay, I'll go talk to him tomorrow. Next week we'll look at Thornton's map and finalize the height of the dam, but right now I'll tell Wɛranolubu thirty doli; let's round it up to thirty-five doli. Can you talk to the foundry about the iron we'll need?"

"I'll talk to Yimu," agreed Amos. "We'll have the rolling mill ready next week; maybe we can roll iron pipes for the base of the dam."

Chris got started right away solidifying the details of the dam construction. He walked to the foundry and Arjakwés dam and the first time he found Miller, he saw that he did not appear to be in a good mood, so Chris did not raise the matter. But the next morning Miller came out of the foundry looking very pleased—they had used the roller for the first time on a slab of molten steel—so Chris went into the Miller household a few minutes later. Miller was relaxing with a glass of hot tea.

"Good morning, John," he said. "I gather the roller operated well?"

"Yes, yes. It flattened the steel bar very fast; we now have our first piece of sheet metal. It's irregular in shape, but uniform in thickness and smoothness. Of course, the work took twenty men hauling the roller back and forth using chains and ropes. We've got to have electricity and electric motors!"

"Amos can do only so much at once; either electricity or a heating system."

"We need rolled steel for both, because we can make the remaining components for the hydroelectric unit and pipes and boilers for the heat. But I still want the heat first." He looked at Chris curiously. "What can I do for you?"

"I've been figuring out what to do with my surplus harvest. I want to build a dam across the Péskakwésgluba. It only needs to be 35 doli high and 20 wide; a much simpler, cheaper dam. It'll allow us to give more water to the Moritua and irrigate more land here. I also want to extend my land claim upriver and dig a canal to irrigate it."

"Ah-hah." Miller said nothing else at first. "How much can we irrigate?"

"Based on the records we kept all summer, Amos estimates we can irrigate 1,000 to 1,300 agri and still provide Morituora with a reasonable supply of water."

"And what will I get out of it?"

“The canal will be parallel to the Péskakwés and enter the Arjakwés a bit farther downstream. You can make a claim down the canal from us; there’s plenty of unclaimed common land there.”

Miller considered. “I suppose. Of course, claims are useless here unless you can use the land, or unless you are the Lord. I’m the Lord of Mɛlwika, so I can claim as much as I want and rent it to people.”

“And where does Mɛlwika end? Does it extend to Péskakwésgluba?”

“If it did, Mɛlwika would be much bigger than any other village around here. On the other hand, no one will settle east of us because the water is not reliable and the guards here can’t protect them.”

Chris stared at Miller’s face, trying to determine whether he was opposed to the dam or not. “So if I spend half my family’s fortune irrigating wilderness, will I have to rent it from you?”

“No, no. The Lord of Mɛlwika will recognize your claim; just give me something in writing and mark your boundaries. But I wish you wouldn’t do it now. The Lord of Morituora will just get angrier and more suspicious, but maybe after a year of getting water from us, he won’t worry. What’s the rush? You can’t use the land anyway. First, let’s build the expansion of my dam.”

“I was planning to drive to Morituora, bring Lord Mitrudatu gifts, and invite him to come see our work. In fact, I was even thinking of inviting him to provide me with ten workers and paying them well; then he would have people who know the work. The advantage of doing the work now is that we can store more of the winter rains and protect the small dams we’ve already built. The more we store now, the more we can give him

later. The Isérakwés will provide a downstream flood without the Arjakwés; if the downstream communities are worried they won't get anything we can even provide a small, second flood later, if we have two dams to store the water."

"Then you should go tell the downstream villages. The Réjé won't be pleased if she gets complaints. That's my big worry, Mennea. If we hold back water, people will think we are stealing it and they will be angry because they don't understand. Back in the summer I had wanted us to build the entire dam at once. Now I'm glad we didn't, because pretty soon our reservoir will be full and we will have a flood. If we stop the flood everyone will worry."

Chris considered. "You're right, we need to do more education. I'll ask Thornton and Lébé to work on a basic information sheet we can give people."

"Better you than me. The other problem is harder to solve: the Tutanɛs. Every two or three winters they come down here with their animals for a month or two. When I settled they tried to drive me out because I was using their winter pasture. That big bowl by the exit of the Péskakwésgluba is a favorite of theirs."

"Then we'll leave it; we can even improve it for them."

He raised an eyebrow. "As I said, better you than me. But talk to Pɛrku first; he may not like the idea."

"Alright. You've given me quite a list of people to talk to. I'll plan to do it this week because I hope we can start construction in a week or so, before the first flood."

"You're ambitious. Keep me informed."

"I'll do that." Chris rose. "Have a good day."

He headed out of Miller's house and back to his own to find someone who could accompany him to Morituora, mostly to watch the rover while he was inside. He eventually found one of Miller's teenage daughters who was happy to take a ride. They headed for the *mori tua,* "swelling lake."

Moritua had not swelled much; the river had been trickling into it without any floods. At least there was no irrigation to drain it. Lord Mitrudatu greeted Chris warmly, gave him generous hospitality, and complained for two hours. Chris drove home in the early afternoon.

"It won't be easy," he said to Liz and Mary over a cup of tea. "It doesn't assure Mitrudatu to tell him we can give him his water any time we want. He wants it now and says we can build up our supply later."

"He's right," said Liz. "If we have promised him his traditional share of the water and he gets priority, then we don't have a right to anything until there is a surplus."

"But how do we define `surplus'?" asked Chris. "That late summer flood would not have flowed into the sea. It would have spread over the floodplain southeast of Mɛddoakwés and sunk into the ground. The people there would have used some and nature would have used the rest. Instead we caught it, passed it to Moritua, and almost none of it flowed beyond the farms and pastures east of Mɛddoakwés. I'm sure there are villages that didn't get any flood at all. Maybe that freak storm fed some children who wouldn't have been fed otherwise."

"But the Arjakwés receives two or three tributaries, and they must have had floods that gave water to the lower river valley," said Mary. "If those rivers have dams, too, everyone will have more water."

Chris shrugged. “I hope so. Maybe villages at the bottom that only get a little water now will never get any, and the villages upstream will get a lot more. Of course, if we can make pumps for them—maybe windmills—they’ll have plenty. There’s plenty of water underground.”

“There’s a lot to do,” agreed Liz. “When can we start the dam?”

“I need to talk Miller into opening the penstocks and letting a lot more water downstream to Moritua. If we build a dam, we’ll have to leave the penstocks open most of the winter. But that’s okay. We could gradually build up a minimal supply for our own use and let the rest go. We don’t have the canals and farmers to irrigate 1,000 agris even if we had the water to do it.”

“But we could rent land to farmers and let them build houses here in the village,” said Liz. “There are a lot of poor, landless young men who want a chance.”

“We can always proceed with the school instead,” said Mary, with a smile. “Thornton printed out my revised design yesterday, you know.”

“Mother, I didn’t know you had a design, let alone a revised design!”

“Then you haven’t been listening to me, Chris. Maybe now you’ll sit still long enough to look!”

“I’m sorry, mother! I’d be glad to look!”

“Then I’ll get it for you,” she said with a smile. She got up and walked slowly to her room. She returned a minute later. “I think this has everything you asked for. It’s a brick and stone building two stories high with a basement that’s half underground and with a flat roof designed to be used for classes and recreation. It has four circular skylights 3 meters square to bring light into its 6 classrooms, 32 dormitory rooms, and the

basement spaces: offices, the kitchen, refectory, and storage. The first floor has two large classrooms ten meters by seven and sixteen dorm rooms; the second floor has four smaller classrooms five meters by seven and sixteen dorm rooms. Every level has two rooms with toilets and two with sinks. The basement has eight private bathing rooms."

"With doors at each end of the building?"

"And stairs to the roof."

Chris looked at the blueprints, nodding as he went. "What are the dimensions?"

"The building is 26 meters long and 15 wide."

"That's good sized."

"It's what you asked for. It has a lot of classroom space, but I suppose we'll devote one room permanently to science and engineering classes, and others to other classes. There should be room for classes for children in the building. What I still don't know is whether you want lots of windows. Eryan buildings have very few."

"I know, but I think we can get glass panes made, and until then we can close them with translucent cloth and wooden shutters. I want as much light in the building as possible; there's no guarantee we'll have electricity or that it will be reliable. It would be nice if people could look in and see the classes going on; it will encourage interest in education."

Mary nodded. "I like the idea. I'll design some windows, but I'll leave it to you to make small panes or large ones. You wanted Amos to earthquake proof the building too, right?"

"If he can. You left 40 centimeters of thickness for the outer walls? That should allow use of timber."

"I did. He even said to me the wall would have vertical, horizontal, and diagonal timbers within the brickwork; he has ideas about that."

"Good. Maybe we can get the builders at Nénaslua to start on the school while we're waiting to build the dam. Maybe they'll give us a break for giving them so much work."

"I bet the school and the dam will take all winter," noted Liz.

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Thornton and Lébé took two days to design the brochure Chris wanted. The inside showed snow and rain on the mountains, floods raging down to a reservoir, and a steadily flowing river below. They had created a few symbols that had to be explained. A circle of six arrows represented a month, for some Eryan months had six weeks; they showed four months of rain with four drops or snowflakes each over the mountains, but eight months of one drop each below. The outside had a color photograph of the Arjakwésgluba dam and a photo of the Péskakwés gluba, so people could picture the construction that was planned. They kept the writing to a minimum, but did include one panel of words in the new spelling system. In a few hours Thornton printed several hundred.

Chris left the next day for a three-day trip down the river, accompanied by Mitru, who had managed to alienate his wife again, and thus wanted an opportunity to leave. They stopped for several hours at every village from Moritua down to explain the brochure and ask questions about the river's habits, because the habits changed as one went downstream. They learned a lot, as they explained to the family the night they returned.

"Some flooding is necessary," said Chris. "We need to let water flow at least as far as the Isérakwés several times during the winter, and maybe sometimes all the way to the sea if there is a drought. The flood will recharge the groundwater supplies, help plants germinate, give waterfowl a chance to nest, flush salts from the soil, and allow fields to get irrigated by flooding. But the floods don't have to be big or long. If we tell the farmers when they're coming they could use them more efficiently."

"But will they let us build the dam?" asked Amos.

"I suppose. The fact is, no one knows how much water is flowing at Mɛlwika, and below Moritua the river's flow is artificial anyway. The Morituora people often turn it off for their own benefit and the detriment of the people downstream. There's no one to regulate the river system, like there should be. We already have a dam on the Arjakwés; the Péskakwés dam is much smaller, and no one will be able to tell it's in place. The key is keeping the folks at Morituora happy, and we can do that by giving them the water they need first, then backing up storage for our use, then letting the surplus flood over the dams. In fact, I think it's raining in the mountains now; we'll have floods tomorrow. I suggest that at first light we crank open the dam and let the water flood out. Then when it receives a big flood, the dam will be under less strain."

"That's probably wise," agreed Amos. "It sounds like the Génadɛma needs to devote some time to studying the hydrology of the Arjakwés watershed. It would be easy to build a few measuring stations."

Chris shook his head. "Let's not dig up the riverbed somewhere and set up an official measuring station. If we did it below Moritua I am sure the Lord there would be angry, because it would allow the people downstream to pressure him about how much

water he's giving them. I'd choose a spot right above the diversion canal to Moritua and one or two below the lake's outlet where the natural riverbed makes a measurement reasonably accurate, and try to stop by every time we go to Mɛddoakwés. It would be a good idea to find a spot on the Isérakwés as well. We need to talk to Miller about water releases. He likes to hold onto water and release it gradually because it guarantees water for the mill. But when you do that, Moritua never fills up, because they can release the water to irrigation and complain the lake isn't full. They could probably demand twice as much water from us as they would have normally gotten from floods, and the people downstream will get even less."

"That's a problem," said Behruz, pondering.

"Something to ask the Réjé about," suggested Mary.

Chris nodded. "Maybe tomorrow, when Thornton goes to Wɛrétrakɛstɛr's class, I can go along."

They drove to Mɛddoakwés shortly after dawn the next morning. They drove to the palace's postern gate, which was usually closed to civilian traffic; but the guard let them drive the rover inside, and then inside the palace gate. That meant the rover was safe, because the guard could watch it and would have to open the gates to let it drive out. Chris went to Wɛretrakɛstɛr's house, then accompanied the widu's young son around the palace complex, visiting Aryɛru, general over all of the queen's armies, and Roktɛkɛstɛr, the chief engineer. Aryɛru was uninterested in the issue of water rights, but Roktɛkɛstɛr grasped the problem immediately. By early afternoon Cristofero Mennea was ushered

into the presence of the Réjé, who was seated on her throne, crown on her head, wrapped warmly against the room's cold.

"I am grateful to be granted an audience, Your Majesty," he began.

"We remain pleased to see you, Mennea. Every encounter is surprising, and so far they all have the theme of water. Approach the throne." She held up the sheets of paper Chris had given Roktɛkɛstɛr, including the color brochure of the dams. "Our honored engineer has explained these to me in detail. But I am still surprised you can actually measure a river. Rivers are big, fast, ever-changing things. It is like measuring a person; or measuring Esto."

"Your Majesty, rivers are big things, and when one studies them they are fascinating things; but in some ways, they are simple things. When it rains they get bigger; the more it rains, the bigger they get. When there is no rain they get smaller or dry up completely. There are some things about rivers one cannot measure, such as their beauty or majesty. In these qualities they reflect Esto. But we can measure their size. It requires a little knowledge and some patience. One measures them once every day and writes it down."

"In a book." The Réjé used *bɛrwona,* an old Eryani word that had become more common since the Menneas' arrival. She pointed to Roktɛkɛstɛr. "Could he do it?"

Chris nodded. "Yes, Your Majesty. We could teach someone to measure a river in a week or two, just by watching us. And we could teach someone to understand the information and interpret it in a few months."

The Réjé nodded. "And you are saying we can stop the entire river or make a flood whenever we want?"

“Yes, if we have enough dams and can coordinate them. But there is danger, too. Many villages down the river depend on the floods. If we stop the floods completely, the people will starve.”

“The honored engineer explained this to me; that we need to allow some floods for the ducks and fish, for they are part of what we eat as well. What we need is a purpose for allowing the water to flow. On Gɛdhéma, is it true that your kings change the rivers to suit the needs of the people?”

“Yes, they try, but often the dams are not large enough, so there are still terrible floods and droughts. Era is easier, I think; the rain is more constant and reliable.”

“And if we build dams on all the major rivers, how much more water will we have compared to now?”

“We won’t be sure without more measuring, but I think it will be at least half more, maybe twice more.”

“Esto be praised.”

“But we must decide how to allocate the water, or else there will be trouble. People will kill for water. Cities will fight.”

“Then we will subdue them,” said Roktɛkɛstɛr.

“No,” replied the Réjé. “The gɛdhému is right. This must be a subject of discussion among the lords of the area. Otherwise some will be jealous or resentful.”

“Your Majesty, could representatives of all the villages participate in the discussion? This is the sort of matter that requires inclusion of as many voices as possible.”

The Réjé considered, a bit irritated by the suggestion. “The lords represent the villages, even though they often make sure they profit the most when something like this comes along. Sometimes the headmen of the villages are invited by their lords to meet and discuss a matter.”

“And as lord of the lords, you could invite them to come here, could you not?”

“I could, but I am not inclined to do so,” the queen replied sharply. “Mennea, have you any other thoughts about the Long Lake and Ora?”

“No, Your Majesty. I have been thinking about the situation and want to bring you a detailed proposal. Perhaps I can speak to Roktɛkɛstɛr about the matter.”

“I want both of you to discuss that problem, and I want both of you to make a plan for dams and water use on the Arjakwés. How much do dams cost?”

“Between five hundred and 3,000 dhanay each, depending on their size.”

The queen nodded. “Good. And horseless wagons?”

“Like our rovers? I don’t know how much they will be. Several thousand. It will still be half a year, also. Meanwhile, Lord Miller is building iron stoves and fireplaces. They produce far more heat than stone ones.”

The queen’s face lit up. “Really? I want one! It’s cold in here!”

“He is making it to please Your Majesty.”

“And make some money, of course. But you are different, Mennea. Some gɛdhémɛs we ignore; some we kill; and some we work with.”

“I hope I am in the latter category, Your Majesty.”

“I hope you stay in the latter category, Mennea.”

33.

Steam

Cristoforo Mennea returned to Mɛlwika with something of a mandate not only to build a dam on the Péskakwés, but on the other tributaries of the Arjakwés as well. He and Roktɛkɛstɛr took the mandate seriously and talked several hours afterward. They didn't even have a map, so they didn't know how many glubas required dams. Roktɛkɛstɛr at least had access to the tax records and promised to get a scribe to assemble a list of villages and the number of agris of farmed fields and head of animals they had; that would provide a reliable idea of each village's water needs. He also promised to move temporarily to Mɛlwika with his engineering team to participate in the construction of the Péskakwés dam. That would give him experience. Amos would reciprocate later by mapping the sites for the other dams, planning their sizes and designs, and inspecting the results.

Meanwhile, rain and snow was falling on the mountains and both rivers by Mɛlwika flooded. The Arjakwés was left essentially "turned off" while the Péskakwés raged, sweeping away two of the three dams they had built on it, including the first one. Moritua began to fill rapidly. The construction team excavated the hole for the Génadɛma and made bricks, then built a strong stone foundation for the building and raised the heavy timbers for supporting the second story and roof. When Roktɛkɛstɛr arrived he was fascinated by the use of so much wood, which was impractical in Mɛddoakwés because of the cost of transporting it to the city.

By then the flow of the Péskakwés was diminishing and the Arjakwés reservoir had filled nearly to the spillway. The foundry had managed to make a heavy iron pipe 1.5 doli in diameter and a gate that could be lowered to close it. Using both rovers they towed the iron pipe to its planned resting place in the gluba and lowered it into place in a trench excavated in the loose gravel on the gluba floor. The next day, using rovers and wagons, they began to haul large boulders from the ridge sides and placed them in a trench excavated across the gluba's gravel floor, laying the foundation for the dam.

As they built, the river raced through the pipe and bypassed the dam. Storms came through the mountains twice and dumped snow but the river did not rise significantly; in fact, it began to drop as the mountains began to freeze. This was the usual pattern in early and mid winter, though the pattern had exceptions. The first four days they took boulders and mortared them into place using cement that one of Miller's sons made daily with limestone the rovers had hauled from Akanakvei. As the stone and concrete dam rose, a ramp of clay half as wide as the gluba rose against it to carry stones, cement, and other materials to the top. Ropes attached to pulleys allowed the rovers to pull small carts with boulders to the top of the dam without going up themselves.

In four days the dam had been built as high as it needed to be; they even completed the spillway. Efforts switched to surrounding the stone core with clay and gravel to give it greater weight and seal any possible leaks. The river had slowed down enough to flow through the pipe without pooling at all, so they began a huge earth-moving effort to pile and pack clay against the upstream side of the stone. Wagon load after wagon load was moved up the ramp from downstream and dumped while other men spread it out and tamped it down. Eight days after they began, the dam was finished

except the spillway. Since they needed cement to make it and they had no plans to fill the reservoir soon, the dam was temporarily completed.

Chris shifted the workers to the génadɛma. A team of three had been kept busy making bricks while the dam rose, and the bricks had slowly dried in the cool weather. The day after the dam was finished the first batch of bricks came out of the oven, ready for use. The thirty men made very fast work of the school, which was enclosed and divided, roof and all, in another two weeks.

The Menneas threw a feast for the entire village, which was traditional when a house was finished. Everyone gathered outside to watch the unveiling of the school's sign, which gave its name in large letters in the new system, with the old syllabic spelling underneath. Then the building was opened to public inspection. Mɛlwika walked through the school, marveling at the empty classrooms and dormitory cubicles, wondering what the former could be for. Then they got in line for the food—served in one large classroom on the first floor—and spread out all over the rooms of the first floor to eat. Roktɛkɛstɛr and Pɛrku sat with Chris and Liz—the hosts—at the head table and enjoyed the food and music. When the sun set the party began to break up. Finally Chris turned to Roktɛkɛstɛr. "Will you leave for Mɛddoakwés tomorrow?"

"I think so. I have been here almost four weeks. Even with visits home, my wife and children miss me. And I have learned much; I need to think about it all."

"Perhaps you should give the engineering and surveying class for a while. You have much to share, and teaching a subject is the best way to learn it."

"True, but I don't want you and Amos to get off the hook!"

“We’ll give more classes later. On Gɛdhéma four years of advanced education is common. We need to train people constantly because their skills will constantly improve. That’s why our civilization had such machines as rovers and construction like the dam.”

“I hope we can get such things, too.”

“If you stay around tomorrow, I think you will see the beginning step toward a rover.”

“Really? A rover?”

“Well, it is a very small step. I think it will be in the morning.”

“Yes, I will stay! The Réjé will be very pleased!”

“Well, it will be a *very* small step. I hope you can bring your engineers here for the next class. We can use this very room.”

“Yes, it will be very good. It has a lot of light.”

“Essential. It will have tables and chairs in a few months, also. Unfortunately the furniture will have to wait because the cost of the dam and the building were more than I had calculated. I barely have enough money left to dig the irrigation canals and feed my family! But I am sure we can make more money; the school will receive pay for services.”

“And now you have irrigated land to rent to farmers.” Roktɛkɛstɛr pointed out the window. “Mɛlwika has only eight lots for houses left, and once the word gets out that you have irrigated land to rent there will be a rush of landless young men.”

“Yes, I thought so. Commander Roktɛkɛstɛr, how much should I rent it for?”

The engineer smiled. “The standard fee is half of the crop.”

“That’s what I thought.”

“But you have a different rate in mind, don’t you?” Roktɛkɛstɛr laughed and slapped him. “Oh, Mennea, you worry too much about the poor! If you didn’t, maybe you wouldn’t be penniless right now!”

“I’m not penniless! And I won’t be; I have a long life of experience making money. But yes, I have a vision for Mɛlwika. I think I will charge the men a little more than fifty percent of their crop. I’ll charge a third for the Rejé’s taxes, a tenth for my rent, and a tenth more as payment toward their buying the land over twenty harvests.”

Roktɛkɛstɛr looked at Chris, surprised. “You’d sell them the land?”

“Yes. Why not? We’ll give them a piece of paper that is proof it is theirs, with a map and everything. Will that upset the lords?”

The general considered. “Eventually it will. But they won’t understand what you are doing, at first. I urge caution. You probably should reconsider that idea. Why shouldn’t they pay you a sixth of their crops forever?”

“Because if they own the land, they will be proud of it and will work harder. I will be willing to buy them out any time, too. And for their labor, I will provide them with fertilizer and access to machines to help dig the land and harvest the crops; as a result their crops will be large and they will do well.”

“And marry and have children; something some sharecroppers are unable to do.”

“No, the sharecroppers marry and have children, and the children die of starvation and disease. We won’t have that here.”

“And you’ll teach them to read and write?”

“Only if they desire it. And in ten years Mɛlwika will have very capable men *and women* able to start all sorts of industries, make goods wanted all over Era, and provide

services to Her Majesty that she doesn't even know she will want. If you want engineers, my Lord, come here first."

Roktɛkɛstɛr was amused. "Hey, Mennea, let me tell you something that will amuse you. Wɛrétrakɛstɛr has been going to the queen weekly to teach her your system for reading and writing Eryani. Now she has one of your little books and a quill pen. She writes all sorts of things. I think soon she will order all the government scribes, everywhere, to learn it. Think of the business you'll have then!"

"Most of the training will be by her scribes who already know the system. But we will be teaching other things. Kwétɛru has almost finished his dictionary; the first version of it, anyway. Lébé has been assembling the hymns of Widumaj and soon we will be able to publish the entire collection. That will greatly strengthen this world because it will bring the divine teachings to more people. Lua wants to begin teaching her healing arts. Behruz and Amos will continue to teach science and engineering. There is so much!"

"There is, there is," agreed Roktɛkɛstɛr.

The next morning Thornton and Lébé spent two hours cleaning the génadɛma, which was a mess after two-hundred fifty people had eaten in it. The new wooden floors and the plastered walls were stained with food; it would be a lot of work to clean them completely.

They came out when it was time to go to the foundry. They put on their coats against the cold and hurried over. Next to the foundry, Yimu and Amos had set up the steam boiler. On the bottom was a firebox about a meter long, wide, and high. On top was

a boiler of about the same size. Extending upward was a short metal chimney and a steam pipe.

Chris and Roktɛkɛstɛr stood nearby watching the firebox heat up. Tritu had stuffed a lot of small wood into it and it was burning up fast. Roktɛkɛstɛr walked over and put his hand near the iron.

"This produces a lot of heat."

"Yes, it is a property of metal to release a lot of heat," agreed Chris.

"I can see how this machine could heat the palace."

"It could heat a large room very well. But the steam, when it starts to come out the pipe, will be able to heat the rest of the palace."

"How will we install pipes everywhere?"

"We have a team to do it," explained Amos. "We can weld pipes together. From the firebox, the pipe must go straight up to the highest place you want to heat. Most of the steam will get that far and continue down the pipe. As it condenses and becomes hot water, the hot water will flow down the pipe and back to the boiler, where it will be heated back to steam again."

"But won't water escape?"

"Yes, but there will be a place in the system where water can be added." Amos pointed to a pipe on the side of the boiler that ended with a faucet. "It can be added here."

"You can vary the amount of heat each room gets, also," added Chris. "Every room will have a short length of heating pipe in it and a loop of pipe like a collection of intestines that we call a radiator. The person in the room can allow more or less steam through by turning a faucet, regulating the temperature."

“Clever.” Roktɛkɛtɛr watched steam begin to curl out of the steam pipe. The water was beginning to boil. “But what does this have to do with the rovers?”

“When the steam begins to rush out, we will explain,” said Amos. They watched as the water began to boil more and more vigorously.

“How long will the water last in there?” asked Roktɛkɛstɛr.

“It depends,” replied Amos. “The boiler, when it’s full, holds a lot of water; maybe 100 lɛdhi. If the firebox is as hot as possible, it can probably boil all the water in two hours.”

Roktɛkɛstɛr nodded. “And how do you make these iron boxes?”

“Cast iron. We pour the liquid iron into a mould. It is quite tricky; we had to try five or six times before we made this one. It is extremely heavy, also; several hundred lɛdhi.”

“It’s a lot of iron,” agreed Roktɛkɛstɛr.

The steam was rapidly increasing now. Rather than slow curls, it was beginning to flow out with some force. Amos picked up a long pole that had a funnel-shaped piece of iron on the end. “My Lord, please try to place the funnel over the end.”

Roktɛkɛstɛr nodded and took the pole. He lowered the funnel over the steam pipe but found it was impossible to push the funnel on tightly. Whenever he tried the escaping steam, racing through the tiny funnel opening, caused a loud whistle.

The crowd was fascinated. When Roktɛkɛstɛr put the pole with the funnel down one of Miller’s sons picked it up and tried.

“It has much force,” Roktɛkɛstɛr said. “But your rovers do not use steam.”

"No, but we cannot make engines like the rovers yet; they are too difficult," replied Amos. "In the next two months we will make a much smaller machine that will convert the force of the steam into motion. We can take a heavy wagon—one of the largest wagons made in Mɛddoakwés—and mount this firebox and boiler in the middle. The force of the steam will turn the wheels just as well as six or eight strong horses. The back of the wagon will carry wood and water and two men to feed the fire; in front will be a man to steer and brake. Behind it one can attach two or three or more wagons with cargo, and the steam power will pull them."

Fascinating! So this would be much larger than the rovers."

"Yes, and slower; but the steam wagon could still go from Mɛddoakwés to Ora in one day. It would be more difficult for a steam wagon to go to Isurdhuna because of the steep slopes."

"But still, it will change everything!"

"Yes, it will," agreed Chris. "In a few months."

The crowd was busily talking about the steam boiler. Most were fascinated and tried to push the funnel over the steam pipe and laughed at the whistle it produced. Gradually the crowd dispersed, but few people wanted to do any work the rest of the day; Miller grudgingly gave everyone at the foundry the day off without pay. Chris walked with Roktɛkɛstɛr back to the fort where he had been staying and helped him collect his possessions, then drove him to Mɛddoakwés. The rover was towing a trailer and stopped frequently to let people hop on or off.

Amos had been busy all morning on the last-minute details of preparing the boiler and firebox and had not had his chance to make his morning walk around the settlement.

He walked from the East Gate to the fort through a wide public space; the génadɛma on the right, followed by houses, shops and houses on the left. At the fort he turned right and walked up what he was calling Arjakwés Rodha, Arjakwés Road. Periodically he stopped to say hello to the people living on the street because he knew them all.

"Hail, Honored Amos!" said Estoibaru. He was a middle-aged farmer—perhaps forty, though he was not sure of his age—missing his right eye and crippled from a very badly broken left leg that had healed crooked in his childhood. He had come to Mɛlwika from Mɛddoakwés just before the last harvest, had worked for the Menneas as a hired hand when they needed help with the harvest, and had remained in Mɛlwika ever since. He lived off of odd jobs he did at the foundry and in his spare time he had built a half-decent house of puddled mud and wheat thatch against the settlement's northern wall.

"Hail, Estoibaru! How are you today?"

He smiled a toothless grim. "Well, Honored Amos, I am well. Do we know where the irrigation canal will be built, yet?"

"Yes, I think so. Chris or Thornton could show you. You want ten agris, right?"

"At least! And you can help me with the plowing, right? With my leg, I can't do much."

"I know, and yes, we have promised that." Every time Amos encountered Estoibaru he asked the same question.

He smiled. "Excellent! I am so grateful for your family's help, Honored Amos. If I get a good harvest—and I should—then I will be able to pay a dowry and Kalémé will

be mine." Estoibaré had never married because he had no land and no income, and until a few months ago he never had the possibility of either.

"We are delighted. Do you have enough food right now?"

"I do, I do. Now, I told you that my nephew wants to move here? He is a good boy, about seventeen, and there's nothing for him to do in our village. His father has no land for him. Can he have 10 agris too, next to my land?"

This was a common request as well. "Yes, we can arrange it. But he should ask for more; maybe fifteen. Honored Mennea wants young men to have enough for their families. We won't require that he plant all of it the first year. These are decisions the Honored Mennea made last night, after consulting with others."

"He is so generous, so generous, Honored Mennea! My nephew will be eternally grateful, and finally he will have a chance! Now, Honored Amos, we discussed that house lot for my nephew? I hope it is still available for him?"

"Yes, but lots here are going fast. Perhaps he should come here, register for the lot, and improve it in some way, like building a wall on it."

"He can, he can. But I need to tell him. And there is now a young man squatting on the lot."

"There is?"

"Yes. He arrived last night, I think, before the gate was closed. I saw him sleeping on the lot this morning, when I walked to the well."

"I see. Well, I'll walk over there right now and see what he wants."

"If he wants a house lot, please ask him to select another one!"

"I will."

“Thank you, thank you, Honored Amos!”

“May Esto be with you,” said Amos, as he walked on down Arjakwés Rodha. It was a short walk to Bɛlis Stɛja, “Flower Court” as the space between the génadɛma and the Miller/Mennea house was called, because it was a paved area with lots of pots for geranium-like flowers, when the weather permitted them. There was a lot of garbage there at the moment, Amos noted. Then he turned down Génadɛma Rodha, a little alley with the school on the left and houses on the right. There was a stretch of four house lots in a row that were still unbuilt; the last ones in the settlement. A young man clothed in rags, with uncut hair and a scraggly beard, sat cross legged in the middle of the space, an old blanket pulled closely around him. When he saw Amos he was startled by the man’s black skin; then a look of recognition spread over his face.

“Hail, young man,” said Amos, cautiously. Some of the young strangers coming to Mɛlwika were not trustworthy; both Lua and May had felt uncomfortable walking around outside, and even Miller had complained about the safety of his children.

“Hail, Honored. I think I’ve heard about you; you assign housing spaces. I’d like one, if I may.”

“I believe you may, but not this space; it is taken.” Amos walked over to the young man slowly. He extended his hand. The young man rose and stepped to him. They shook. “I am Amosu, the agent of Lord Miller who assigns spaces. Who are you?”

“Modolubu.”

“Is it true?” asked Amos, for the name meant “lover of justice.”

“Is what true?”

“Your name.”

"Oh. I suppose it is true, Honored, as long as I can eat."

"It is hard for a man to respect the law if he cannot eat. Where are you from?"

"A village south of Mɛddoakwés."

That was easy to verify. "And what brings you to Mɛlwika?"

"I hear there is work here, maybe even land. I am a third son; there is no land for me, and no dowry."

"From what village?"

"Yujakwés, Honored." It was a village where the Dwobrébakwés, another large tributary, joined the Arjakwés.

"And how old are you?"

"Twenty-two or twenty-three, Honored."

Amos didn't believe that; even by Eryan standards, Modolubu looked fifteen or sixteen Eryan years at most. "And do your parents know you came here?"

"I have no parents, Honored. I lived with my oldest brother and his family. But he now has three children and the fields are not large enough to feed them, so the time came for me to move on."

"I see." It occurred to Amos he could get the brother's name easily, if he wanted. "And what do you have with you?"

"Just me, Honored."

"Why here?"

"Because everyone says if you want to get ahead, this is the place to go."

"Do they? Well, I hope it is true, Modolubu. This space is for four house lots, but the left two are taken. You can see the backs of the houses on the other street where the

lots are. You can take either of the two lots to the right. The payment is two months' salary per year; usually 2 bushels of wheat or 24 silver dhanay."

"Twenty-four." He looked disappointed. "When do I have to pay?"

"Half in half a year, the rest a half year later. Do you have a trade?"

"No, but I want to learn one. I'm a hard worker, Honored, and I have no physical deformities or limitations." He stood up and spread his arms and legs, showing his thin, wiry frame. "You see? I'm healthy and can work hard."

"I see. Do you want to farm?"

"I can do anything, Honored. But I hear you gɛdhémɛs have a new system of writing that is easy to learn and use. I'd like something involving it, if possible."

"I see. I have several possibilities for you, Modolubu, if you are a hard worker and quick to learn. But it will take a day or two to get one of them ready."

"I will do anything, Honored, but please remember I will be getting very hungry in a day or two."

"I can give you something to do for today's food. We keep a bag and shovel in our house for picking up animal droppings, human waste, and garbage." He pointed to a small, brown pile in a corner of the lot. "I suppose that's yours. There are public latrines just outside and inside both gates. Mɛlwika is a clean place; no shit, human or animal. We need someone to clean it up; it hasn't been cleaned up for almost a week."

Modolubu clearly was disappointed by the request. "You said you have a bag, Honored?"

"Yes, and I can show you the garbage dump where it goes. We'll pay you a silver dhanay to pick up everything here in the settlement and on the ground around the settlement; I'll show you the areas."

"Very well, Honored, I will do that. I can eat two or three days with a dhanay."

"Or buy some things you'll need. There's a woman by the fort who weaves heavy blankets; you could get one for twenty dhanay, once you have it. There's a man who has brick molds that he rents out for one dhanay a week. You'll need a wall around your property."

"Yes, Honored."

Amos smiled. "Come with me right now. We'll record your house lot and I'll get you started on the work."

That evening after supper, Lébé went to their bedroom, crawled under the blankets against the cold, and finished reading "The Hymn of the Peasant" by candlelight. Periodically she poked her hands out from under the blankets to edit a word or add a picture to the text. The hymn of the peasant made references to horses, cows, pigs, chickens, looms, houses, fertile fields, apple trees, and a few other objects that could be identified with pictures, and they were adding such pictures to their text to make it easier to read. Finally she went to find Thornton, who was sitting in one of the rovers with the dome light on, reading.

"I've got the Hymn of the Peasant finished and ready for you to type on your computer," she said. "That means we only have ten hymns left to finish and we'll have all the official hymns ready to print."

"It's amazing; we'll have it done in a month and a half," said Thornton. He took the edited text and read it quickly. The hymn would be about two double-spaced, typed pages once it was in the computer; about average for a hymn of Widumaj. Then he nodded. "I can read your handwriting all the way through without any trouble. I'll see whether Kwétɛru can spare the computer." Lébé knew how hard it was to get the machine from him. Lately the computer had been running 23 hours a day.

They both walked upstairs to Kwétɛru's room—Thornton's old room—located directly above the rover. Wires carried electrical power from the rover to the computer. Kwétɛru sat in his unheated room, two blankets pinned together around him, typing dictionary entries onto the computer. The wooden table was covered with English-language pages from an illustrated dictionary Thornton had found on the web and had printed out for Kwétɛru. Thornton was surprised to note the article on "catapults" on top; Kwétɛru had been busily reading texts that the Mennea family might not approve of. His ability to read English had expanded very fast once he had been given the illustrated dictionary, and it had proved very useful for his own dictionary.

When they entered the room was silent, except for the whoosh of the inkjet printer as it printed Eryan calendars. They had just discovered they could sell illustrated calendars for 1 dhanay each in Mɛddoakwés; the merchants enjoyed them because they were beginning to embrace the Gɛdhéma system of numbers, and the calendars helped them remember it. In a society almost completely devoid of images and writing, they made a bright illustration on the wall. Thornton had taken digital photographs of the city and surrounding countryside, and the pictures were especially interesting to the merchants; Lébé had designed a series of images that helped the owner identify which

month was which, and a short extract from a hymn of Widumaj was always included, the opening few words marked with a few images to help the owner remember which hymn was which. For a few clever people, it was proving enough to learn how to read. Chris was hoping to raise several hundred dhanay for the génadɛma.

Kwétɛru looked up and saw they were bearing a hand-written text. “I’ve promised the computer to Amos in a little while,” he said. “He needs to find more patented machine tool designs on the web.”

“But I bet he’ll have to do it tomorrow morning,” replied Thornton. “He’s still hard at work installing the firebox and boiler over at Miller’s house. I bet Miller regards heat as a higher priority than machine tools.”

“I’m sure you’re right.” Kwétɛru shook his hands. “I sure would! It’s unusual for it to be this cold this early.”

“He’s planning to heat our home too, right?” asked Lébé.

“Apparently the hot water pipe will come across to mom, dad, and grandma’s, and to Lua’s clinic, but not to the other half of the house,” replied Thornton. “But the foundry plans to make an iron stove and hot water system once a week. So we’ll get one pretty soon. They want to be sure it works before sending one to the Réjé’s palace.”

“Smart,” agreed Kwétɛru. “Can you give me another 15 minutes? Then I’ll have the rest of this entered.” He raised a sheet.

“Okay,” said Thornton, reluctantly. “How’s it going?”

“These are additions to the letter ‘s.’ I’ve gone all the way through from a to z once and now I’m making my additions. I’ve got 16,000 definitions!”

“Fantastic!” said Thornton.

"And you've been editing them; I've watched," said Lébé.

"Oh yes." Kwétɛru pointed to a manuscript. Each page was covered with illegible scribbles. "As you see, I've made a lot of changes and additions. I find myself waking up in the middle of the night with changes to definitions or additions to make. But I've got to print out a new copy of the entire thing pretty soon. I'm having trouble figuring out what the text really looks like. Besides, I think it's now good enough to give a copy to Wɛrétrakɛstɛr."

"I suppose I should make another call to Philos, then," exclaimed Thornton. "We're going to run out of paper very soon if we don't get more. Printing calendars and other things to sell won't help."

"I can give you the computer after you make the call."

"Okay." Thornton and Lébé headed back down the stairs to the rover, where his cellular telephone was located. Thornton turned it on and dialed 777-7777.

He didn't expect to reach Philos; almost every time he called he had to leave a voice mail message. But this time, after five rings, Philos answered.

"Hello, is that you, Thornton?"

"Yes, it is. How are you, Philos?"

"I am very well and my writing is going well. I've finished three chapters. How are you?"

"We're all well down here. Say, I thought I'd call because I haven't heard much from you lately. I've left a few voice mails and even two e-mails for you. The e-mails list items we want to obtain from you in return for the information we have been supplying.

One reason I'm calling is because I want to add paper to the list. It's running out remarkably fast."

There was a very long pause; unusual in its length. "I'm sorry I haven't responded; I've been very busy. The wedding is not long away and it's taking a lot of my time. In fact I'll be out of contact completely for 16.8 days, starting in 7.5."

"I hope the plans are going well? I can highly recommend marriage, Philos."

"The plans are going very well, thank you."

"Getting back to our requests for items, have you an idea when we can expect them to arrive? May wants the eyeglasses as soon as possible because she knows several needy people. And I doubt our remaining supply of paper will last more than two weeks."

"I understand, Thornton, and I don't know when we can bring down the supplies you need. It isn't up to me."

Thornton was beginning to get suspicious. "Philos, we're not in danger of being cut off, are we?"

"No, no. I'm sure that won't happen."

"Is our status being reconsidered?"

"Hum. Yes, you could say that. We have to decide what we will do about this world; it involves ethical decisions."

"It does, as we have been saying! We're trying to set up a school and medical facility that can prepare Era for modernization, and that's essential if we're ever going to be put in contact with Earth."

"I know, but I'm not so sure that getting supplies from us is the best way. Eryana is not like even the most unsophisticated societies on Earth. Era is premodern in every

sense. You could be accused of being witches or spirits, or aliens in disguise, if you maintain contact with us. It could get you killed."

"We know that, Philos. But father seems to be managing the situation very well. He has a lot of experience dealing with all sorts of people on Earth, from all sorts of cultures. He started out keeping us obscure and he's gradually building relationships with the queen and her associates. I don't know whether anyone should second-guess him, especially if you aren't here."

"Well, I'm not doing the second-guessing. Eventually he will have to tell the queen about contact with us. About the fact that eventually Era will be in contact with Earth. That will be difficult, and it requires a long period of time building trust. But importing lots of items from us will force him to tell her sooner, before he builds the trust."

"Philos, I get the impression your people have had a bad experience with this situation before."

"We had a similar situation with another species, yes. The secondary world was being prepared for contact, but the inhabitants became distrustful and jealous and murdered the preparers. The problem is that no two species are the same, and even with the same species the situations can vary greatly."

"Then give us advice; don't just refuse us."

"I think advice is what we want to give. I think the advice, generally, is to keep imports to a few small things you can't make, and maximize your production. Maybe you should reconsider the list in that light."

"I see. I'll tell father. I guess we should give you a new list?"

"Yes, I think it would be best."

"Alright, we'll do that. Anything else?"

"No. Thank you for calling, though. I still hope, personally, that you and I can actually meet again."

"I do, too. Bye, Philos."

"Goodbye."

Thornton turned off the phone. He looked at Lébé. "I think we better tell father about this."

"Yes, definitely."

They left the rover and headed for his parents' apartment. Chris was in his office, wrapped in a coat, counting his money. They reviewed the conversation with him. Chris had a very serious look on his face as he listened. "What does it mean, dad?" asked Thornton, when he finished.

"It means the aliens don't like what we're doing. And if Philos has told us the whole story, we even know why." Chris shook his head. "Maybe they're right, too. I don't know. I can't say I have a strategy for developing a relationship with the Réjé, other than caution and integrity. If anything, I am trying to treat her the way the Bahá'í writings say she should be treated: with loyalty and respect. My policy is to be honest, but not to tell her everything right away because it might be too much."

"They said there was a situation when the preparers were all killed."

"And it could happen to us, no matter how careful we are. The enormity of the change we represent to Eryan society will make big enemies, no matter what we do. We already have opponents."

"The priests in Mɛddoakwés," said Lébé.

"Yes, and there are people in court who fear us." Chris shrugged. "But it's hard to say whether the aliens know better than we, because we don't know what they know. They haven't been sharing everything with us. So until they tell us more we can't reevaluate our 'strategy.' That brings us to the second matter: the wish list. What was on it?"

"Lots of things. Behruz and Lua asked for an entire laboratory of glassware; there were pages and pages of pictures. Behruz needs to expand his chemistry lab, and Lua wants the equipment for some medical tests and eventually for making vaccines."

"I remember. Maybe 'eventually' is too far off. We can hire someone to make glass."

"Maybe not the kind of glass they want, though," suggested Lébé.

"It should be good enough. And you want paper. That's also something we should be able to make. Amos wants machine tools; those we can't easily make, that's why he wants them. May wanted optical equipment. You need ink jet cartridges."

"Yes, and we'll *never* be able to make them."

"We have to think about setting up a printing press, eventually. Next time you talk to Philos, mention that to him! If anything could get us killed, that would."

"Why?" asked Lébé.

"We're talking about a technology for making many copies of something that anyone in Mɛddoakwés could build and run, if they saw one working," replied Chris. "It doesn't involve a computer and ink-jet printer at all; it's a mechanical device, like an

olive press. Imagine if someone started writing against the Réjé, made thousands of copies, and spread them around."

"If they said something bad, they would be in prison," said Lébé.

"And so would we," added Chris. "We are trying to be very careful about spreading literacy and printed things. But you can see why the aliens are concerned. Thornton, go over the list and make it much shorter and simpler; cut it to a few essentials. Let's look at it again tomorrow."

By the next morning the list had been shortened and the family was able to discuss it. As they were about to leave the breakfast table, a young man entered the family's courtyard. It was Eryan custom to enter courtyards and hail the family from there. They heard the voice through the dining room's open door. Chris saw him, frowned, and called him over.

"Oh, it's Modo. . . Modolubu?" said Amos.

"Yes, Honored Amos." He smiled, revealing a single missing front tooth. "Yesterday you said I might be able to do something for you, a special project. I cleaned up the village well, you said. It will need cleaning again in a few days, if you wish to keep it clean."

"We do want it clean. I'm sorry, I haven't had time to think about a special project for you. But I need help today on something else. We are installing heat here."

"Do you mean a fireplace?"

"No, the iron fireplace you saw yesterday. It is in Miller's, but the hot water and steam will come here. We can pay you to help."

"That would be an honor, Honored."

“Then come sit and eat with us, Modolubu,” said Liz. She pointed to Thornton’s chair; he had just left before the young man had arrived.

“I am not worthy.”

“No, you are worthy,” said Liz.

“Everyone is welcome at our table,” added Chris. “Sit.”

Modolubu came around and sat. Eryanɛ ate on the floor; they didn’t have tables or chairs. Their only utensils were knives and large soup spoons. Liz handed him bread and placed a dollop of butter on it.

“After you spread it around with your knife, put some of this on it, too.” She pointed to a glass jar. “We call it jam; it is made from oranges, a little lemon, and honey.”

“You are most gracious.” Modolubu spread the butter on the bread, imitating a piece of half-eaten bread on May’s plate. Then he added jam. Everyone watched and nodded approvingly when he smiled after his first bite. Liz poured him hot tea as well.

“Modolubu has come here to make a life for himself,” said Amos. “Let’s see, yesterday you told me you were a third son from west of Mɛddoakwés living with a brother because your parents were dead, and he just had a third child. The farm is too small to support them and you.”

“You have an excellent memory, Honored.”

“And you want to do something with writing.”

“Yes, Honored.”

“Then perhaps Modolubu is my man,” said Behruz. “If we want to make paper, we need to give the task to someone.”

“Pépɛr?” asked Modolubu.

Chris held up a sheet. “This is what we write on. We arrived with a big supply, but now it’s almost gone and we must make some. Behruz was going to figure out how.”

“I am very good at solving problems,” said Modolubu.

“Perhaps.” Behruz sounded skeptical. “But I’ll give you a try after breakfast.”

Modolubu stood. “I am finished, Honored.”

Behruz smiled. “Fine. Bring the bread with you, and we will begin.”

34.

Fire and Ice

An Eryan month—36 days—passed. They entered the heart of winter, when it was below freezing almost every night and chilly every day. But it was warm in the Miller and Mennea houses, thanks to three large coal-burning stoves and a network of iron pipes that carried the steam and hot water everywhere. A fourth one heated the génadɛma, and some families took refuge there from their cold houses. Pɛrku scraped together money from his men to buy a coal-burning stove for the fort and soon it was warm as well. The foundry hummed with activity as orders came in from Mɛddoakwés; the Réjé was pleased with hers as well.

Overnight Mɛlwika had a steady need for coal, so Miller hired a permanent team of three coal diggers. A large coal bin was installed inside the east gate and an old man was paid to sell the coal stored there. Even Mɛddoakwés developed a demand for coal once it was explained that the coal would burn after wood had been lit over it. A few wealthier merchants began to buy it; it was cheaper than wood (which had to be hauled from the mountains) and smelled less than animal dung.

So Miller began a daily run to the city with a wagon-load of coal. He had purchased a special freight wagon from the wagon makers at Mɛddoakwés, and he kept Amos busy installing brakes and other improvements when the wagon was available. Miller found that the freight wagon was already paying for itself and its fine team of horses, and since Mitru was the driver, he had a job that took him away from home.

One day it was below freezing all day. The next morning Miller came across to the Mennea household at breakfast time. Using the door between the houses, he walked from warm room to warm room and never had to go outside.

The table was still full when he entered the dining room; in addition to the Menneas, Kwétɛru, and Modolubu—who was a special guest that morning—there was a young man named Dhugstɛru, "lucky star," who had just wandered in from a village near Tripola and had proved bright. Miller ignored the new arrival and barely acknowledged the others. "Hail, Amos," he said in English. "I have a new challenge for you."

Amos smiled. "John, I'm about three challenges behind! I still have to build a turbine and electric generator for you. Then there's the steam engine. And now I'm working on steering and braking systems for wagons!"

"But the first two are awaiting machine tools, assuming the aliens ever give us any. And the wagon stuff is mostly developed."

"But I have to make constant adjustments, especially since the coal runs are pretty rough on the wagon; you're hauling a lot of weight. In a few more weeks I think I'll have made some important improvements."

"But that takes you only two hours a day, right? Maybe three? This challenge won't take too much time, and my boys can do most of the work once you figure out what work they should do. I want an ice house."

"Ice house?" asked Amos.

"Great idea," said Mary.

“Yes. A building we can fill with ice now, while it’s really cold. We can sell the ice to Mɛddoakwés all summer, not to mention using it ourselves. I need you to figure out how much to store and how to build it.”

Amos frowned. “Storage has to do with demand, wouldn’t you say? Tell me what the demand is and I’ll design the building.”

“I have no idea what demand will be, so let’s design something that should be approximately right.”

“We don’t even know the approximate demand, though.” Amos sighed. “Well, never mind. Kwétɛru, could you search for websites that might have something? Look under ‘ice houses.’”

“I can do it,” he replied, in heavily accented English.

“The building isn’t difficult,” said Chris. “It needs good insulation, and that’s best achieved if it’s underground. Any big hole in the ground, lined with stone and covered with a heavy dirt roof, will do.”

Amos’s eyes lit up. “That’s right, John! We’ll dig the hole into the hillside south of the flat area between your household and the forge. We can use the clay to build the new stable you need.”

“We could put the stable on top,” suggested Miller.

“Bad idea. Horse urine on the ice,” said Mary.

“Put the hay storage for the horses over the ice,” said Chris. “Hay is good insulation.”

“Now, if we’re building this facility, it makes sense to lay out the next subdivision for Mɛlwika,” added Amos. “The west enclosure is full and we’ve got squatters camping

across the river. Every time you think of a new way to make money you give a son a business and he has to hire one or two people. So our supply of jobs here keeps growing. You won't keep them away by keeping them off your land."

Miller stared at Amos. They had just had an argument three days earlier about the matter. "Fine. Plan the south enclosure you proposed to me the other day. It'll double the size of this place and dilute my family's influence, but what can I say?"

"John, it may dilute your family's size here, but it magnifies it elsewhere in this world. If Mɛlwika grows to several thousand people and most work for your family, your family will control one of the largest cities in Eryana, rather than a little village," said Chris, gently.

"I understand that, Mennea; I'm not dumb. But I also know that if this place becomes that big, everything could get taken away, because it will be too important." He turned back to Amos. "There will be a week—maybe two—when it is below freezing every night and most of the time during the day. So there should be a lot of ice on the reservoir. We might even get snow down here. So we need to work fast to be ready. When it starts to warm up, the snow in the mountains will melt, the reservoir will rise, and its ice will break up and melt."

"You can cut it up with a saw until then, you know," said Mary. "When I was a little girl in New England, my daddy said that was what they did. They'd saw blocks from the ice cover and take them to the icehouse, where they were packed in sawdust. I doubt you can find that on the web."

"Probably can," replied Kwétɛru.

"That's what we'll do, then," said Miller. "Wait a week; by then the ice will be thick enough to walk on, and we should have an area to store it ready. Can you design something for my boys to build?"

"Yes. I'll design the south enclosure, too. Will you pay for a wall around it?"

Miller shrugged. "Sure."

Just then Thornton appeared, carrying a sheet of paper. "It worked!" he said in Eryani.

"It did?" asked Behruz, mildly pleased. Behruz rarely showed much emotion, so it was a surprising reaction.

"Yes. Well, not perfectly." Thornton stopped when he reached the table and held up the paper. They looked at it.

"The ink blotted a little," conceded Behruz.

Miller frowned. "So what? Are you making your own ink?"

"No, our own paper!" replied Thornton.

"Really?" Miller took the sheet. He looked close, then turned it over. "Not bad. When I look close I can see it's home made; it's not perfectly white, and the thickness is not constant."

"We'll fix that," said Modolubu confidently.

"Really?" Miller studied the young man, whom he barely recognized, and the stranger sitting next to him. "How are you doing this?"

"Rags, a little cotton, some flax, whitener, and a special process," said Behruz. "It's not difficult."

"*You're* making it?" Miller looked at Behruz.

“Thornton and Kwétɛru are finding the information on the web. Modolubu and I are figuring out how to use it. Trial and error.”

“Can you make enough?”

“How much do you want?” asked Modolubu.

Miller raised his eyebrow. “I see I’m not the only one putting sons in business.”

“Oh, I’m not going into business,” replied Behruz. “I’ve got other things to make in my lab. Modolubu is going into business. It’s a partnership with our family. We’ll set him up and split the profits for ten years.”

“Then it’s all mine,” added Modolubu, proudly.

“I see.” Miller stood up, obviously irritated. “I look forward to seeing those designs; on new paper, I guess. Have a good day.”

The family watched him go. Chris turned back to the others. “Well, I think this achievement is worth celebrating.” He raised his mug of tea. “A toast to Modolubu and his paper.”

“Cheers!” echoed Behruz.

They all clinked their tea mugs together and drank. Modolubu looked very pleased.

“Do you realize what will be printed on the new paper first?” asked Thornton. “*Bɛrwona Mɛndhris Widumaji, The Book of the Hymns of Widumaj.* Tomorrow Lébé and I will take the last hymn to Wɛrétrakɛstɛr’s class for discussion, and after they make minor edits we’ll modify the file and it’ll be done. We have all ninety-six. We’ve included a page of illustrations with each hymn to aid memorization. The book even has an appendix stating how it was compiled and by whom. It’s a real book; it’s 295 pages

long altogether! Dhugstɛru will make the leather covers for every one and hand-sew them together."

"The génadɛma's first real book," said Chris. "On our first real locally-made paper. What an appropriate choice."

"It is very good," agreed Kwétɛru. "You must present the first one to the Réjé; she will be very pleased. Maybe she will even agree to pay for teachers to teach reading in the major cities of Eryana."

"Let's hope so," said May. "Of course, Nénaslua already has decided to hire its own teacher, and we have already promised training materials for him. It's a village of 200 and it's doing more than the capital city."

"It's three kilometers from here," replied Chris. "Amos, how big will the new enclosure be?"

"About twice as wide and long as the west enclosure. The width is determined by the slope of the land, but the length is not; it could be longer or shorter. Mɛlwika already has 200 inhabitants, and its population will double in the next few years simply because a lot of the houses were built by single men who plan to marry and have families. So if you figure we have space for 400 already and the new enclosure can hold 1,600 more, we will have the capacity to hold 2,000. After that, I'd build a wall up the mountain behind the forge to the top and carve streets on the slope. We could hold another 2,000 on the mountainside and secure the peak above town; a military essential, for our safety."

"Except those houses would catch smokestack exhaust from the forge," said Lua, shaking her head. "That problem would have to be fixed first."

"Any estimate when you'll have the first steam engine?" Chris asked Amos.

"Less than half a year, even without machine tools," replied Amos. "The forge is getting more and more sophisticated every day. Yimu and Manu are getting very good at running it."

"Thornton, could you try contacting Philos again? He must be back from his honeymoon, if he had one."

"I'll try again," agreed Thornton. "I've been leaving a voice mail almost every day, though."

"Then let me do it," replied Chris. "Well folks, let's get to work. I've got to go to the Isérakwésgluba today with Amos and Roktɛkɛstɛr to plan the dam there; we'll be back after sunset. But first let's take a look at the site for an icehouse, so we can get a design started."

It was a long day. Chris and Amos returned from Mɛddoakwés when Skanda was close to a quarter full, which happened half way to midnight. His arrival in the rover was heard by much of the family. Liz and Thornton greeted them.

"I wish you had left the phone on," Liz said. "I was getting worried. Next time, at least call when you leave Mɛddoakwés."

"I'm sorry. I should have, but it was a quick drive at night. We were entertained by Roktɛkɛstɛr and a few of his friends for supper, and it went on forever!"

"And they got very drunk," added Amos. "They couldn't understand our refusal to drink with them."

"And when we left it took a long time to find a guard to let us out," added Chris. "The postern gate was locked for the night and no one wanted to open it."

“Did you see the gluba?” asked Thornton.

“Oh yes!” replied Chris. “We picked up Roktɛkɛstɛr and two other engineers and drove along the dirt road that loops along the Isérakwés to the mountains. As the crow flies it’s probably six and a half kilometers, but with the loop in the river I think it’s more like fourteen. There are two villages, including Mɛgdhuna, a place of about 600 people at the base of the mountains. As the name “big pasture” implies, Mɛgdhuna is built on the edge of a big, round, fertile plain at the mouth of the gluba.

“The gluba itself is pretty unusual. The mountain rises as a steep wall to the ridgeline, and there is only the slightest dip in the ridge where they put the gluba through. The ridge is probably 600 meters above the plain, but on the other side of the ridge it’s maybe 150 meters lower than the crest, so the floor of the gluba rises 450 meters in about 2,000 horizontal meters. It’s 150 meters deep where it cuts through the ridge, but most of the time it’s only 10 to 15 meters deep, and there are a few places where it runs through natural dips in the mountain slope and there is no gluba at all.”

“Sounds like we can build quite a dam, if it’s 150 meters deep in one spot,” said Thornton.

“Yes, we could. The logistical problem, however, is that the dam is almost two kilometers from a village up a steep, roadless mountainside. It’ll take a month or two just to carve a road to the building site so we can bring people and wagons easily. There’s also a severe shortage of clay and dirt at the building site. We’ll either have to build the road up over the ridge to the other side, where there is clay, or build the dam of rock.”

“At least we know how big to make the dam, though,” said Amos. “The glubas themselves tell us because the aliens have made the bottom width a function of the water

volume. The Isérakwés has about the same volume of flow as the Arjakwés. Furthermore, there is a natural spillway if we build a dam 47 meters high, and that height would probably allow us to store a two-year flow of water, which is plenty."

"How big is the reservoir area on the other side of the gluba?" asked Liz.

"Quite big because the land is rolling and hilly. A 50-meter dam would make a lake three kilometers long, I think."

"Roktɛkɛstɛr was very pleased with the situation," added Chris. "He can't wait to get started. He has agreed to go to every single village downstream and talk to them about providing fifty, even one hundred men for a month. As soon as we can make the iron pipe to carry the water through the dam he'll get the workers up there to fill the gluba with rocks. He wants to capture the spring melt, if possible."

"He *is* fast," said Liz.

"But what about downstream?" asked Thornton.

"I bugged him about that all the way back to the city," said Chris. "When we arrived, midafternoon, he took me to meet his second cousin Wɛranu, who is Chancellor of the Exchequer. Call him Secretary of the Treasury. It turns out, by the way, that Roktɛkɛstɛr's father was the brother of the Réjé's father. Aryéru and Wɛranu are also members of the royal family. This is one way the Réjé keeps the loyalty of her team: they're all part of one big family. Anyway, Wɛranu was very cold to us until Roktɛkɛstɛr explained over a large glass of ale that tax collections might double if the dam was built. Eventually Wɛranu warmed to us and opened the tax books. They keep pretty basic records using usbɛlɛ leaves—big, flat leaves imported from Sumilara. They stack them in baskets the old-fashioned way."

"Hence *bɛrwona,* book, comes from *bɛrwonu,* basket," noted Thornton.

"That's right. There's no real accounting system, and of course no alphabetization. They didn't even have dates on anything so they got records from previous years mixed up. But Wɛranu went through and looked up all the villages along the Arjakwés and Isérakwés and downstream and read aloud to me their tax payments; so many bushels of grain, gallons of olive oil, so many animals, pairs of shoes, yards of linen cloth, etc. There are no censuses; no one knows the population. When Gɛslekwés tried, apparently, it was controversial, a prominent widu condemned the plan, many did not cooperate, and it was a failure. But I wrote down the tax receipts and we already have estimated populations for many of the villages. We can make estimates for the others; heck, we can go photograph them from a nearby hill and count structures. So now I have the information I need to draw up a water distribution plan."

"Not to mention the accounting lessons," added Amos.

"What lessons?" asked Liz.

"Wɛranu was impressed when I started to explain bookkeeping. I mentioned double-entry systems and he wanted to know more. So starting next week I have an appointment to teach the treasurer's office bookkeeping. I think it's a good idea; it's a service and it'll build a lot of trust. I had already asked Modolubu to make some accounting ledgers for me."

"He'll be delighted," said Thornton.

"I know. Well, what happened here today? How are the plans for the icehouse?"

"Grandma has them roughed out," said Thornton. "I took her out and showed her the site and we measured the height of the embankment, the length of the site, etc. She sat

with her ruler and pen and laid out a building twenty meters long and ten wide, dug into the bank, which is five meters high. The east half of the building is the icehouse, the west half is stable; on top of both is a long hayloft. They're separated by a stone-faced earthen wall a meter thick. The outer wall of the icehouse is also a meter thick. Later tonight I'll put the design into the computer, if I can ever get the computer back from Kwétɛru. We can show Miller tomorrow."

"Good. You're going to Mɛddoakwés tomorrow, right?"

"Yes, for Wɛrétrakɛstɛr's class."

"That's what I thought. I'll hand-write a letter to Wɛranu to give to you tomorrow."

"I'm sure I can get it to him," said Thornton.

The next morning Thornton and Lébé rose before dawn so they could wash and prepare for their trip to the city. Shortly after dawn they climbed into a rover, drove it out of its garage, hooked up the trailer, and headed in. Kwétɛru accompanied them; they carried their first copy of *The Book of the Hymns of Widumaj*.

With the rover, the sixteen-kilometer trip usually took about thirty minutes, depending on how many times they had to stop to give people rides. Giving rides had become a standard way of making good will with the villagers in between, who knew the rover came through weekly on its trip to the philosophy class in Mɛddoakwés. The first stop at Nénaslua filled the warm interior of the rover to capacity and filled half the trailer with people heading for the market with produce. They stopped at Béranagras, Boléripludha, and Morituora to let people get off or others to get on.

As they approached Mɛddoakwés' northwestern gate they were surprised to see an enormous plume of black smoke rising from the city's southwestern side. The field outside the northwestern gate, normally filled with farmers and others walking out of town for a day of work in their fields and orchards, was startlingly empty.

"The city must be on fire," said Kwétɛru.

"What?" said Thornton, startled.

"There must be a fire," Kwétɛru repeated.

"And it looks like a big one," added a fifty-ish man squeezed into the back seat. "I was a kid when the city had a big fire. It burned down almost the whole thing. Only the palace and temple and a few scattered houses survived."

"Really?" said Thornton, shocked.

"It hasn't rained for a month," added Lébé. "Very unusual for winter. Just snow in the mountains. So the city is dry."

"Don't your cities on Gɛdhéma have this problem?" asked someone in the back.

"No. We can fight fires."

"Esto be praised," replied the man, no doubt wondering how such a thing was accomplished.

Thornton drove right through the northwest gate—there was a soldier there, but he didn't care. The marketplace was closed and the stalls were filling up with people fleeing the fire with their few possessions. They could smell the smoke.

Thornton stopped and everyone in back climbed out. "We better go to the fire and help," said one man. "It's the law. No sales today."

"I suppose that means no class; what do we do?" asked Thornton.

“Join a bucket brigade,” said Kwétɛru.

“That’s why the fire is spreading,” said Thornton. “But if we could get the irrigation pumps—the ones that are run when we jack up the rover’s rear wheels—and the irrigation hoses here, we could put a lot of water on the fire!”

“Oh, is that what you meant by fire fighting!” exclaimed Kwétɛru. “You’re right, you can pump a lot more water on the fire than the bucket brigade can carry to it! Call your father!”

“You’re right!” Thornton grabbed the phone and punched the number of the cell phone in the other rover. Almost instantly it began to ring; the aliens had installed a remarkably swift system. But there was no answer.

“Come on, come on!” said Thornton.

“Let it ring, someone will hear,” urged Lébé.

“Where would we get water?”

“Maybe the river,” said Kwétɛru. “The fire is over on that side of the city. Shall we drive over while you wait?”

“Yes.” Thornton handed the phone to Lébé and put the rover in gear. He drove back out the gate and along the road that ran parallel to the city wall.

“Ah, here’s Mary!” said Lébé suddenly, handing the phone back to Thornton.

He took it while he drove. “Hello, grandma? This is Thor. We just got to Mɛddoakwés and there’s a big fire on the south side of the city. Dad should drive down as fast as he can with the irrigation pumps and hoses, so we can help fight it.”

“Fire. Oh, Lord. I’ll tell Chris. Wait a minute.” She put the phone down.

Thornton looked up at the smoke cloud, which was huge. “That’s a big fire.”

“It’ll burn the entire south side, too, if the wind continues the way it is,” said Lébé. “These buildings don’t burn easily because of the stone and adobe, but when they start to burn they burn hot because of the wooden beams and reed thatching.”

“Narrow alleys full of junk, buildings built to no standards, and no water; a real problem,” Thornton said, shaking his head.

They drove around one more corner on the outside wall and suddenly reached the Moritua gate. Four bucket brigades snaked out the gate to the river, which was carrying a trickle of water only; the buckets were scooping up every drop. But the river was swelling larger every moment, presumably because the Moritua dam had been opened to respond to the crisis.

The phone crackled. “Thornton, what’s happening?”

“Dad, Mɛddoakwés is burning! It looks like the fire started somewhere near the Moritua Gate, but the smoke is farther west than that. It’s a big fire! There are four bucket brigades extending out this gate!”

“Grandma said you wanted the irrigation pump?”

“The pumps and hoses! With both rover engines running pumps, we can get a lot of water into the city; a lot more than lines of buckets!”

“I see what you’re suggesting now. I’ll have to get help, load one trailer with the hoses and pumps, and race down. It’ll take at least half an hour.”

“Okay, good! Get someone to stay with the phone and radio. We’re turning on the radio, too, and we’ll go into the city with the phone to see what’s happening. Kwétɛru will go in.” He looked at his friend, who nodded. “Keep the phone out of sight, if possible.”

“I will. I know it isn’t witchcraft, but the others won’t.”

“Be careful. We’ll listen at this end.”

“I’ll see whether I can listen in here, too,” said Thornton, turning on the rover’s radio. It was able to scan some of the bands where cellular phones operated, and the aliens had usually used them for the phones. In a moment he hit static. “Is that it?” he asked and heard his voice over the radio. “I found it!”

“Good. Liz will listen in on this radio and I’ll take the cell phone with me, but shout if you need me because I’m putting it down, now.”

Thornton looked up at the column of smoke and realized how close some of it was to the gate. The column was more of a line of separate blazes; quite a few houses were burning at once. A fifth bucket brigade was taking shape by the gate and bridge, leaving very little room for their hoses. Fortunately the river was rising every minute.

“Hello, this is Kwétɛru! The fires start about 200 doli from the gate and extend down a narrow alley that is full of bucket brigades! It won’t be easy to get the hoses in!”

“How much hose do we have?” asked Lébé.

“We have fifty three-meter sections. Three meters is about six doli, depending on whose doli you’re using. They can be put together pretty easily, but it’ll take some time,” replied Thornton.

“Another task to do! The city will burn first!” wailed Lébé.

“And people are staring at us.” Thornton pointed. “You know, I better get out and help until dad gets here. You watch the rover, run the radio, and call me if there’s something.”

“Okay.”

Thornton got out and waited for Lébé to shift to the driver's seat. On two occasions he had let her drive a rover a short distance, slowly, so she understood the controls and how they worked.

Thornton ran over to the nearest bucket brigade. An old man looked tired, so he said, "Rest, I'll take your place."

"Thank you, Honored," the man replied.

Thornton grimly got into the swing of the buckets. Some were surprisingly large and heavy, and his arms felt the strain right away. He was not in as good shape as most of the others in line; he spent too many hours with books. On the other hand, because he grew up with good nutrition, he was nearly a foot taller than the average man and weighed fifty percent more. He was twice as big as some of the women hauling buckets. No one spoke; they were concentrating everything on the work. It was surprising how coordinated the line could become and how fast it could move water. If someone wasn't ready for a bucket one put it down, and a few people like the old man were ready to jump in and grab a bucket temporarily. The people had experience.

The half hour seemed to pass very slowly. Periodically Kandékwɛs, the Lord of Mɛddoakwés, would hurry down the line, glance at the river to make sure it wasn't drying up, shout words of encouragement, and hurry back to the fires. He smelled of smoke; there was no doubt that he was doing his duty. One time he saw Thornton, recognized him, and after getting over his surprise he nodded a greeting.

The swinging of buckets was interrupted by the honk of Chris's rover. Thornton saw his father driving up pulling a trailer loaded with half of Miller's sons and Miller

himself. They all began to jump out. Just then Kwétɛru appeared through the gate; he had been summoned by phone.

Thornton stepped out of line and the old man came over to replace him. He ran over to help remove the rover's right rear tire, then jack the rear up. The Miller boys had done this every week over the summer, when the rovers had powered the irrigation system. On the drive down they had assembled the hose sections into two long hoses, and while some prepared the axles others stretched the hoses across the ground, so they would fill with water quickly and easily.

Once the tires were off, the pumps were bolted on instead, so that the turning axle would turn the pump. Then the rear axles were jacked up more and sandbags were put under the vehicles to give them stability. It was a fairly fast process because everyone knew how to do it, and they had agreed who would do what on the drive down.

The people in the bucket brigade watched when they could, but kept their focus on their work. Three boys had already stuck an end of the hose into the river and filled it with water. Now they kinked it and lifted one end to push water toward the pump. "Okay, go!" Rostu shouted to Chris, when water apparently reach the pump. Chris put his rover into gear and the left rear wheel began to spin uselessly in the air. The hose shook as the pump began to suck the water out of it, so the boys unkinked the end. The water began to flow. Chris kept the engine going slowly; they had to get the hose to the fire before accelerating the pump. Kwétɛru and Mitru began to drag the hose, mostly empty, to the gate and inside, where they began to pull it toward the fire. The other sons helped.

When they reached the alley water began to flow out the end, but the crowded alley posed a dilemma: the five bucket brigades and two lines returning the empty

buckets filled it almost completely. They were about to squeeze in when Kandékwɛs came down the main street.

"What is this?" he demanded.

"Lord Kandékwɛs, this intestine is filled with water and when we get it to the fire, the Gɛdhémɛs will use their machine and put much water in it. So we must get to the fire!"

Kandékwɛs stared at Kwétɛru for a moment, trying to imagine the situation. He knew him from the days the Sumi stayed with the widu. But his Eryani didn't make sense. The language had no word for hose or even for tube; the Miller boys had coined a word by modifying "intestine." "This way," he said, after a moment, and he began to push through the crowd up the alley. They hurried to keep up; the hose was heavy and getting heavier by the minute. When Kandékwɛs saw them struggling, he stopped and pulled as well.

When they reached the first burning house, Kandékwɛs stopped pulling. Put the water here! Do we use the buckets from here?"

"No." Kwétɛru pulled the cellular phone from his pocket. "Honored Mennea, start the water!" he exclaimed. He put the phone away, pointed the hose, and braced his legs. He had watered hard-to-reach corners of fields this way and he knew how far the water could fly.

The pressure built steadily; the hose was nearly at its maximum length. The water came out with more and more force and traveled farther and farther; in a few seconds it was shooting onto the house's roof.

“Incredible!” said Kandékwɛs. The bucket carriers stopped their work to watch, which caused a problem farther down the line where no one could see the spectacle of water shooting ten or more meters. “What a marvelous machine!”

“We have another one coming,” added Kwétɛru.

They fought the blaze all day with the two hoses and five bucket brigades. It turned out that they needed both forms of firefighting in order to get enough water on the fire and to control small fires started by sparks. It was late afternoon before the fire was finally contained and began to decrease. If the rovers had arrived an hour later it would have been too late and the whole city might have burned.

The Miller wagon came down with alcohol fuel to keep the rovers going. By sunset Amos shut off one rover.

“Too much damage to the rear axle bearings,” he said. “I’m not sure we should drive her home; we may have to tow her. But one rover is enough to keep the fire under control, now.”

“Are you sure we can run the other one?” asked Chris.

“Yes. It’s a newer vehicle, and I haven’t heard any sounds from the axle, so I think it’s fine. I’ll take it apart and check, though, when we get it home.”

“Why are you stopping?” said Lord Kandékwɛs, hurrying over.

“The machine has worked too long; it is damaged,” replied Chris.

“Can’t you repair it?”

“No,” replied Amos. “Perhaps in a year or two, when we have better tools.”

“A year or two?” Kandékwɛs stared at them a moment, digesting the information. “This is an amazing situation. A quarter of my city has burned, and all of it would have if you hadn’t helped. You sacrifice one of your two amazing horseless wagons. And now your son stands accused of setting the fire.”

“What?” said Chris, startled.

“Yes, someone has said they saw him start it before dawn. I am skeptical; it doesn’t make sense. But the Réjé has ordered that he be held until we can determine the truth of the matter.”

“Held? Do you mean in the prison?” said Chris.

“The prison,” confirmed Kandékwɛs.

“No,” said Chris, shaking his head. “I will go speak to the Réjé herself. This is not right!” He caught himself and kept his tone under control. “My Lord, we just spent the entire day helping fight this fire. We are exhausted. We have sacrificed. Lord Kandékwɛs, this is not proper reciprocation for our sacrifice.”

“You are correct.” The Lord pondered. “The Réjé will not see you now; she never receives subjects in the evening. This is her time to dine and rest. But she will see you in the morning. Perhaps if your entire family were guests in my house tonight, including Thornton, that would be proper reciprocation for your sacrifice. The Réjé could not object to his house arrest in my home. And this will allow me to host all of you at dinner, thereby recognizing all of you for your efforts.”

Chris nodded. It was an awkward offer; it could be interpreted to be the arrest of all of them. “We accept, Lord Kandékwɛs. Perhaps we should accompany you personally?”

"Yes. Allow me to make one last inspection of the efforts. Then I will return." Kandékwɛs turned and walked back into the city.

Chris looked at Amos, who looked back. "I'll go find Thornton and bring him here," said Amos.

"And I'll tell Miller." Chris walked over to the other rover, which was still working hard to pump water from the river. Miller was sitting in the driver's seat. "John, you and your boys will have to take care of the rovers. The other one shouldn't be driven; it has a bad axle bearing. Amos says it can be towed slowly, though."

"It worked too hard?"

Chris nodded. "It's old. We'll have to develop more machine tools before we can repair it; the part can't be replaced by a blacksmith."

"That's too bad. At least we've stopped the fire. Maybe Mɛlwika should go into the fire fighting business."

"Maybe. Amos, Thornton, and I are staying the night with Lord Kandékwɛs. Someone has accused Thornton of starting the fire."

"What? Absurd! How dare they! It must be the priests!"

"Maybe; I don't know. Rather than putting Thornton in prison, Kandékwɛs has agreed to keep him in his residence. I'm staying because I'm worried."

"The bastards! Don't tolerate this, Mennea! Don't give an inch! The ingrates!"

"I'll handle it, John, don't worry. What will be the procedure? Will there be a trial?"

"Of sorts. The Réjé will hear the accuser, then hear Thornton. She will hear you, of course. The Eryanɛ are not strong on legal niceties; they will want to know what

happened, period. If she is convinced Thornton is guilty, he'll probably be executed that day. If she is convinced the other man is lying, she may execute him instead for bearing false witness. The stakes are high."

"I guess so." Chris looked down at the ground, thinking.

"Hey, maybe it's time I prayed for you," said Miller.

35.

Trial

Amos brought Thornton. He reeked of smoke; he had been holding the hose most of the day. Chris told him. “What? Are you kidding?”

“No. The three of us will stay with Lord Kandékwɛs tonight, and get this straightened out in the morning.”

“All three of us? What about Lébé?”

“I think it would be best if she went home.”

Thornton nodded. “Are we under arrest?”

“Sort of.”

“How do we deal with it?”

“I’m still not sure. I’m thinking. Talk to Lébé.”

“Alright.” Thornton walked over to Lébé, who was talking to her father. She obviously had heard. She hurried to Thornton as he approached and hugged him.

“They won’t execute my husband!”

“Execute me?” he said, startled.

“They won’t!” She clung to him.

“Did you hear Amos, dad, and I are staying tonight, so we can straighten the matter out tomorrow?”

“Good! But I’m staying with you, too.”

“Dad suggested you should go home. We’ll call tomorrow, after we clear up this confusion.”

She shook her head adamantly. “No, I’m staying with you.”

He looked at her. “I want you here, too, but dad thinks you should leave.”

“You’re my husband. I’m staying.”

“Okay.” He kissed her, and they walked to Chris, who relented.

The Lord Mayor then appeared and led them to his home by foot. They walked across the burn zone; in many places the heat had been so intense that adobe and stone walls had crumbled, leaving ruins. Even the walls that still stood were fragile because the straw that had held the mud together had burned away.

The Lord Mayor’s house faced the citadel and palace across the main square. The square was now filled with families huddling in the merchant’s stalls against the cold, their few possessions gathered around them. It was a pitiful sight.

They entered the house and Kandékwɛs ordered the bath to be prepared for them all. He showed them two rooms—cold, drafty ones, elegantly decorated with tapestries on the walls and soft pillows on the floors for sleeping. Then he led the three men to the bath. The four of them spent the next hour naked, bathing, talking, while Kandékwɛs studied the bodies of these strange men and tried to talk to them like they were ordinary Eryanɛ nobles. It was a bizarre ritual for Thornton in particular, who felt like an insect being examined.

When they came out, clean and no longer smelling of smoke, warm robes were ready for all of them. Kandékwɛs led them to the main hall where a feast was ready and stepped out of the hall briefly. Awstɛr, Kandékwɛs’s wife and eldest daughter of the Réjé, was there waiting, dressed in her finest. Lébé was with her, washed and wearing a new robe.

“Gentlemen, please sit,” she said, indicating the pillows on the floor to the right of the Lord Mayor’s place. She then sat on his left, but also at the head of the low table. Lébé sat next to her, facing Thornton. As the four children sat to her left, Chris cast his eyes on Awstɛr. She was a beautiful woman, about thirty, with red hair. “I am very grateful for your exhausting work on behalf of this city,” she said. “These fires are rare, but when they happen the tragedy brings out the best in our city folk. Everyone worked remarkably hard today, and by Esto’s grace we extinguished it. Your machines were crucial. They are amazing things.”

“They are, my lady. We were fortunate to be in them when we were brought to this world.”

“Yes. I heard you stopped to help one of the spirits who brought you here, and your effort to assist was unjustly rewarded by this exile.”

“The story is correct, my lady. But life is unpredictable, is it not? If we had not come here, my son would not have met his wife, Lébé, daughter of John Miller.”

“That is true.” Awstɛr turned to Lébé and smiled. “Life is indeed unpredictable.”

Just then Lord Kandékwɛs returned to the room. Chris started to rise, but saw no one else did the same. Eryan customs at dinner were relaxed, not formal. Kandékwɛs reached out and touched Chris’s shoulder. “Sit, Honored.” Kandékwɛs sat next to Chris at the head of the table. He took the platter of carved meat—gazelle, apparently—speared a piece for himself, and handed the platter to Chris. One by one he took items for his plate, then started the platters around. Eryan knives had an upcurled sharp end that could hook food; knife served as fork as well.

“How are the poor, my dear?” he said to Awstɛr, after eating for a minute or two.

“They cry for our charity, Lord,” Awstɛr replied quickly. “I distributed bread to all and 100 blankets to those most needy. Tomorrow the temple will open to house many of them temporarily. Her Majesty has promised to open part of the army barracks for widows and orphans. I think many will have housing with relatives and friends, also, once we pledge food for them.”

Kandékwɛs considered while he chewed. “We will pledge food for a month. That will be enough time to rebuild. Honored Mennea, how is the timber up by Mɛlwika?”

“We have excellent timber, Lord, in the mountains above the village. Right now it is hard to harvest because of the snow, but once the snow starts to melt we can use the swollen rivers to float the timber to Mɛlwika, where we can saw it any way it needs to be sawed at the mill. Then the freight wagon or rover can bring the lumber here.”

“Do you know the price?”

“No, I do not, because Lord Miller’s son runs the mill.”

“I see.”

“And how does this sawing mill work?” asked Awstɛr. “Is it like one of your horseless machines?”

“No, my lady. The principle is simple; the falling water turns a wheel, and the turning wheel turns a saw that is circular, like a wheel. The waterwheel pulls the log against the spinning blade as well. We cut trees very fast and the cut is straight and clean.”

“The quality is high,” agreed Kandékwɛs. “I should have invited Lord Miller to stay as well; perhaps I could arrange a special deal. The Lord Mayor will help these people rebuild.”

“Perhaps the Lord Mayor could consider a new water system for the city,” suggested Chris, gently. “Just in the last month, the Miller Ironworks has acquired the ability to make pipes of iron. They can be sealed together so that water can be kept in them under considerable pressure. If a line of pipes was placed under every main street in the city, with public fountains every hundred doli, water would be plentiful for people and animals, and fires could be fought more easily.”

“An interesting idea. But how do we get the water into the pipes under pressure?”

“I think we could design a system, my lord. We will soon have iron fireboxes that make steam, and the steam can be used to turn a wheel just like falling water can. The turning wheel could turn a pump and push the water up to a tank at a high place; perhaps somewhere in the citadel, where they should store water anyway. Then the water would flow naturally downhill to the pipes under all the streets.”

Kandékwɛs nodded. “A clever idea, Honored Mennea.” He ate more of his gazelle.

“I hear you are teaching people a new way to read and write,” said Awstɛr.

“Yes, my lady. It involves learning only twenty-eight characters. Any adult can learn it in a few sessions.”

“I see.” She turned to Lébé. “Can you read, dear?”

“Indeed, my lady! My husband and I are working together to write books to teach reading and writing. Perhaps you have seen the piece of paper that describes the value of building dams on the glubas. Thornton and I put it together.”

“I have seen it, and hymns of Widumaj.”

“We have been arranging the hymns of the great seer in a single book, with pictures that help explain them, so many can learn to read them. Imagine if everyone could recite all the hymns of Widumaj! The guidance of Esto would be known by all. If the peasants knew they could live better lives and commit fewer crimes.”

“An ambitious program,” said Kandékwɛs.

“But possible. All my brothers and sisters have always been able to read and write using the old system of the priests. We did not know it well, but we knew most of it. We also knew my father’s system from Gɛdhéma. Many people in Mɛlwika and even in Nénaslua have learned the new system. Our merchants in Mɛlwika receive written requests for items from Nénaslua!”

“I can see many advantages,” agreed Awstɛr. “Especially if there is more of this pépɛr.”

“We have just started making it in Mɛlwika, because the supply we started with has become exhausted,” said Chris. “In a week or two we will begin to sell it. You may know the young man who is making it; he is from west of here. Modolubu, son of Génu.”

Kandékwɛs’ eyes lit up. “Yes, I know him! He was living with his older brother, but there was so little farmland to support the family. I remember, he came to me in the fall asking for land, but there was none. How is he as a worker?”

“He’s hard working and bright,” replied Chris. “He’s a young man who wants to get ahead and make something of himself. He works in our house, he eats with us, so we know him well. Our arrangement with him is that we have taught him papermaking—or to be more exact, he worked with us to figure it out, because we had never done it

before—and we have helped him go into business, and in return he gives us half his profits for ten years. Then it is his business, free of us."

"Generous," said Kandékwɛs.

"And this Modolubu; can he read and write?" asked Awstɛr.

"He has started to learn," replied Chris.

Kandékwɛs raised an eyebrow. He turned to Thornton. "Now, tell me what happened today. The entire story, from when you woke up."

"Well, Lord, I rose when the sky was beginning to glow, about an hour before sunrise. My wife and I both washed. Then all of us had breakfast; the household has thirteen in it, now. After breakfast, less than an hour after sunrise, three of us—Kwétɛru, Lébé, and myself—got into the rover and drove to Mɛddoakwés. This took half an hour. We had a small wagon attached to the rover and stopped at Nénaslua, Béranagras, Boléripludha, and Morituora so that people could get on and off the wagon."

"What people?" asked Kandékwɛs, puzzled.

"Anyone, Lord. It is a long walk from Mɛlwika to Mɛddoakwés; almost thirty dɛkɛnt. So we give anyone a ride who wants one. It makes it much easier for farmers to bring things to market because they can put it on the wagon. Normally at night we drive back, and they get a ride home, too. We go to Wɛrétrakɛstɛr's class every Dwodiu, and everyone in the villages knows this, so they plan for it."

"How many people came to Mɛddoakwés with you, then?"

"Maybe twenty."

"And when was this?"

“Early morning. We saw the column of smoke as we approached. The market was deserted, except for people coming there with their possessions. We knew immediately there was a fire. I called my father—”

“Was he with you, too?”

“No, Lord. I’m sorry, I must explain. Each rover has with it a small thing called a telephone, and when you speak into the telephone, your voice is heard in the other telephone, even if they are many dɛkɛnt apart.”

“Ah! I saw Kwétɛru speak into one, asking your father for water, and then the hose filled with water! But at the time I did not think about how he did it!”

“Well, now you know. The telephones are a kind of machine.”

“A very useful machine, if they carry your voice many dɛkɛnt,” said Awstɛr. “Can you make more of them?”

“Perhaps in a few years, my lady, we can make something like them,” said Chris. He reached into his pocket and pulled out a cellular telephone and handed it to Kandékwɛs to pass to her.

He looked it over very carefully, then handed it to his wife. She took it, fascinated and turned it over in her hand. “How does it work?”

“I will show you.” Chris reached across the table and took it back. “You see these bumps? They are *buttons.* If you press them, they make a sound.” He pressed a few and let them beep. “Each button has a different symbol on it. This one is stands for 1, this one stands for 2, 3, 4, 5, 6, 7, 8, 9, and so on. Each telephone has its own number, so if you want to call a particular telephone, you punch in its number. For example, the telephone

in our other rover is 334-7472." He punched the number and showed the display. "If I then push this button, this phone calls the other one."

"Push it," said Kandékwɛs.

"Very well, Lord. Lean close and you will hear."

Kandékwɛs leaned close and everyone grew silent to hear the faint sound. Chris pushed the button. "That sound is a ring. It indicates the telephone at the other end has received a call. Someone there must push the same button."

There was a click. "Hello?"

"Liz, this is Chris," Chris said in Eryani. There was a pause at the other end; Chris never spoke over the phone in Eryani.

"Chris, where are you? Is the fire out?"

"Yes, mostly. Thornton, Amos, Lébé, and I are having dinner with Lord Kandékwɛs and Lady Awstɛr, the Lord Mayor of Mɛddoakwés, and he wanted a demonstration of the cellular telephone, so I called."

"I see," she replied. Worry could be heard in her voice. She knew that such a demonstration was unusual; Chris was not one to show off their technology.

"Will you speak to him?"

"Of course."

Chris handed the telephone to Kandékwɛs. "You listen here and speak here," he explained.

Kandékwɛs took the telephone. "Who is at the other telephone, please?"

"This is Elizabeth Mennea, wife of Christopher Mennea."

"And where are you?"

“In my house in Mɛlwika, Lord.”

Awstɛr laughed. “This is amazing!” she said.

“Indeed,” agreed Kandékwɛs. “Lady Mennea, tell me about this morning. How did you hear about the fire?”

“On this telephone, Lord. Thornton called from Mɛddoakwés and asked us to come in the other rover and bring the irrigation pumps and hoses.”

“Oh, so you use these things for irrigation!” exclaimed Kandékwɛs. “That explains why you had such bountiful harvests.”

“And paid bountiful taxes,” added Chris.

“So, my lady, Kristoféru then drove in with the other rover and the items?”

“Correct. We hurried to find everything because it was stored for the winter. Later Chris called again because they had forgotten alcohol, which is the substance the rovers burn to do the things they do. So the Miller family sent their wagon with the alcohol.”

“Thank you, Lady Mennea. I enjoyed speaking to you. Here is your husband again.” Kandékwɛs handed the telephone back to Chris.

“I’ll call you later and tell you the story of everything that happened today,” said Chris. “Goodbye for now.”

“Goodbye.”

Chris pushed another button. “Now the telephone is off,” he explained. He put it back in his pocket.

Kandékwɛs stared at his food, which was getting cold. Everyone’s was getting cold. “So, what can you add?” he said to Thornton.

“Well, Lord, after I called my father, I drove the rover around the city until I reached the Moritua gate, where we saw the bucket brigade. I gave the phone to Kwétɛru to go inside the city and find the fire. When father arrived, we had to know where the hoses would go. Then I joined the bucket brigade and left Lébé in the rover to listen for other calls. You see, the rovers have another thing like a telephone; we call it a radio. It does not have a number, but it can pick up calls from anyone, and sometimes you can even speak to people who are calling on telephones. Any radio can let you speak to any other radio; actually, to all other radios.”

“Why do you have these two different things?”

“Because on Gɛdhéma some people have radios and others have telephones. We have both, so we can talk to everyone. Lébé listened for any calls, but there were none. I joined the bucket brigade.”

“Where I saw you. Then when your father arrived, you worked on the pumps and hoses.”

“Yes, Lord, and you showed us where to put the water.”

“I know that part of the story.” Kandékwɛs nodded and thought for a moment. “I want the names of people who came with you this morning. They can be from any of the villages, but I prefer people from Nénaslua. I want Modolubu here tomorrow, to talk about your house. I want Kwétɛru, too. I want the other telephone; it can be brought here?”

“Indeed, Lord,” said Chris.

“Good. Who runs the garrison at Mɛlwika?”

“Commander Pɛrku.”

“Yes, Pɛrku. I want him here, tomorrow.”

“And this is all to defend Thornton?”

Kandékwɛs was surprised. “Of course, Honored Mennea! If all the villages between here and Mɛlwika know the sound of your rover and know they can have a ride, it is impossible to drive the rover here without them knowing. The fire started about an hour before sunrise; it is impossible to get to Mɛlwika in time for breakfast if Thornton started the fire. Besides, Pɛrku should know who comes and goes from Mɛlwika at night, should he not?”

“Yes, they keep a guard on the tower.”

“And the telephone explains how you arrived so quickly with the pumps and hoses. Some may ask about that.”

“That is true.”

Kandékwɛs smiled. “So let us enjoy our meal. Then I will send out some servants to find any of the people who came to town with you this morning.”

The Lord Mayor turned back to his food. Chris looked at Thornton with a smile, and then resumed eating as well.

Once supper was over, the Mennea family was escorted to their rooms for the night. Chris invited Thornton and Lébé in. “Well, I think you should get a good rest tonight. We need to be prepared for the morning.”

“It sounds better.”

“Yes, it does,” agreed Chris. “But you never know.”

“I don’t like this at all,” said Lébé. “The courts here are not fair or just.”

“But the Réjé is the judge,” said Thornton.

"That's right!" exclaimed Lébé. "I know father would not deal with this problem this way. Sometimes you have to be willing to pay."

"No, that is not our way," said Chris. "I have lived many years in countries on Earth that are like Era in many ways. I have dealt with leaders like the Réjé and the lords here. In fact, I have dealt with governments that were far worse. Era does not have much corruption, for example. And my life has been in danger in those countries."

"What did you do?" asked Lébé.

"I was true to my values and convictions. We are Bahá'ís, Lébé, and one of the things that means is that we will be judged by Esto when we die. Being judged right is more important than living a long life. We are not foolish with our lives; we love life. But we do not lie, cheat, or bribe to preserve our lives. There is a power to honesty and integrity that others feel and respect. There is no similar power to dishonesty."

"I hope you are right."

"Let's pray for assistance, then," said Chris. He reached into a pocket and pulled out a well-worn prayer book. And they prayed.

The Réjé started the next morning by touring the still-smoldering ruins of the city's southern quarter. She commanded the royal treasurer to pay for bricks for all widows and old couples so that they could rebuild properly. Then she returned to the palace and called for Thornton to be summoned. When Thornton entered with his father, wife, and brother-in-law, he was surprised to see Wɛrétrakɛstɛr there, as well as Roktɛkɛstɛr, General Aryɛru, all the students of the weekly class, Miller and two sons, his own mother

and grandmother, Pɛrku, and the other Eryanɛ of the Mennea household. Men in yellow robes—the priests of Esto—stood together on the right side of the room.

"Young man, approach the throne," commanded the Queen. Thornton walked forward nervously, meekly. He bowed before her, as was the Eryan custom.

"Young man, you are accused of starting a fire that burned a quarter of this city, then helping to put it out. Is this true?"

"No, your Majesty, it is not. I did not start the fire, though I did help to put it out."

The Réjé stared at him intently, trying to see into his soul. She was almost fierce in her gaze; quite intimidating. "And how do I know this is the truth?"

"Your Majesty, I am a truthful person, and swear on the name of Esto that I am speaking the truth."

"I see." She continued to gaze at him another several seconds. Then she looked up. "Sarisunu, approach the throne." A man standing next to the priests walked forward until he was standing next to Thornton. He was about 40 years old, wearing a green robe and sandals. "Sarisunu, state what you saw."

"Your Majesty, I was awakened from my sleep yesterday morning by a sound in my weaving shop. I put on my robe and came down the stairs to find this man in my shop, lighting a fire. The fire was already bright and hot; I could see him very clearly. He ran out immediately when I appeared. I ran out the door and saw him flee down the alley."

"And what did you do?"

"I immediately came inside to fight the fire! But it was already too large for my meager supply of water, so I ran outside and shouted 'Fire! Fire!' to get more help!"

“And you swear on the name of Esto that this is the truth?”

“I swear, Your Majesty, that everything I have said is the truth, I swear by Esto’s name it is the truth.”

The queen looked at both. “So, two men with two stories. Both swear by Esto’s name that they speak truthfully. Thornton Mennea, what evidence do you offer?”

“Your Majesty, I understand this fire began an hour before sunrise. At that time I was in my house in Mɛlwika, 30 dɛkɛnt from here. My wife can tell you that. My family and friends can tell you that as well. My wife was with me all night. The others saw me at breakfast, which we began to eat as the sun rose.”

“I see. Is this true?”

“It is Your Majesty,” said Lébé, Chris, Amos, and Liz.

“And you all swear by Esto’s name it is true?”

“We do, Your Majesty,” they all repeated.

“And Commander Pɛrku, step forward,” commanded the Queen. Pɛrku, dressed in clean uniform, approached the place where Thornton and Sarisunu stood. “Commander Pɛrku, was there a guard on duty all night that night?”

“Yes, Your Majesty.”

“What did the guard see?”

“Thornton, Lébé, and Kwétɛru left for Mɛddoakwés in a rover after dawn, and therefore after the fire began. It would not be possible for the rover to leave for the city at night and return because it makes too much noise. Besides, there is a custom that the rover always stops to give people a ride to the city, so everyone looks for it. Yesterday they gave many people rides after sunrise; some of those people are here.” He pointed to

three men, standing against the wall. “It is impossible to drive to Mɛddoakwés from Mɛlwika, even at night, without it being heard and seen.”

“I see.” The Queen turned to the accuser. “Sarisunu, what say you to this?”

“Your Majesty, I never said I saw or heard a rover. I believe the Gɛdhému used a different form of transportation. I saw him spread his arms, as he ran down the alley, and soar into the air! He flew here, Your Majesty, set the fire, and flew home!”

This accusation caused quite a stir. Almost everyone in the hall turned to their neighbor and commented on it. Thornton was surprised. “And what say you, Mennea?”

“Your Majesty, I apologize that I am a mere mortal and cannot fly. Perhaps there are times it would be of great use. It might even be a lot of fun. But I cannot fly.”

“No? You Gɛdhému can do many things. Why can’t you fly?”

“Your Majesty, the air is too thin for humans to fly. Humans weigh much more than birds. On Gɛdhéma, there were humans who built big machines—the size of sailing ships—that could fly. But no one could fly by moving their arms like they were wings. We cannot do this.”

“I see. Commander Pɛrku, do the Mennea fly?”

“No Your Majesty, I do not believe so. They have remarkable machines and remarkable knowledge, but I have never heard them say they could fly, and I have never seen such a thing.”

“Very well. Honored Christopher Mennea, what say you?”

“Your Majesty, my son speaks truthfully. We cannot fly.”

“I see.” She considered. “Wɛrétrakɛstɛr, what say you?”

The widu stepped forward. “Your Majesty, for months the Gɛdhému has spoken freely in my classes about Gɛdhéma and about what they can do there. They have mentioned flying ships, but they have never said they can personally fly. I think it is very clear what is happening here. Sarisunu is a cousin to the priest Aryéstu. The priests have never liked the Menneas and the ideas they have brought.”

“That is your theory? Aryéstu, what say you?”

One of the leading priests stepped forward. “It is true that the widu has little appreciation for the work of the priests, and perhaps we have little appreciation of his also.”

“And what say you to his accusation?”

“If it was an accusation, it was a slander. We have nothing to do with Sarisunu’s testimony.”

“Thank you. Kristoféru Mennea, what say you to the accusation?”

“Your Majesty, I do not know the priests and seek no quarrel with them. Indeed, I appreciate the work they are doing for the poor, especially now when so many are suffering. I think Sarisunu is mistaken. I do not know whether he saw a spirit or another person.”

“What about one of the aliénɛs you speak about?”

“The aliénɛs have no desire to set fires. They wish to study Gɛdhéma, and if, in the process of studying Gɛdhéma, someone sees them, they take that person here so he will not speak of them to the other Gɛdhémɛs. All of our ancestors were Gɛdhémɛs.”

“I see. We have heard a motive for Sarisunu; what motive would Thornton have?”

“Your Majesty, if they secretly burned part of the city and then publicly put out the fire, they would be heroes and acquire great influence,” said Aryéstu.

“They would. But is this a likely motivation of the Mennea family? Pɛrku? What say you?”

“Your Majesty, I have known the Menneas for six months. When many feared my arrival in Mɛlwika, they welcomed me warmly. They taught me and my soldiers many things, including reading and writing according to the new system. They have been generous and loving. They are not dishonest or evil people.”

“Wɛrétrakɛstɛr, what say you of Thornton’s character?”

“Your Majesty, the son is a true reflection of the father. They are both as Commander Pɛrku describes them: honest and concerned to help others. They would not hurt others.”

“And Kandékwɛs, what say you, after your investigation?”

“Your Majesty, I, too agree with Pɛrku and Wɛrétrakɛstɛr. This charge is false. The Menneas are good people.”

“I see. Then the judgment is clear.” She turned to Thornton. “You are a hero, not a villain. I thank you, on behalf of the people of Mɛddoakwés, for your service to them yesterday.” She turned to Sarisunu. “And you have tried to turn the blame away from yourself, for you admit the fire began in your shop. I can only conclude that either you set the fire on purpose or accidentally, and chose to blame another. You have lied to me and blasphemed Esto. And you will be executed for it.” She looked to the guards. “Take him to the prison.”

Sarisunu looked terrified, but stood in silence. The guards grabbed his arms and led him out.

The court was completely silent until the door banged shut. Then Chris spoke up. “Your Majesty, if I may make a request, it would be that his life be spared. There are forces in motion here that few understand fully, and they make people behave in unexpected ways.”

“What forces are these, Mennea?” asked the Queen.

“Your Majesty, Thornton was not the only person on trial here. In a sense my entire family was on trial, and what we stand for. Gɛdhémɛs have come here for thousands of years, and they have brought knowledge from the home world. But never before have so many Gɛdhémɛs come at once, with so much. We bring knowledge, and that means we bring change. Furthermore, when the aliénɛs brought us here they told us that the day is approaching when they may put Gɛdhéma in touch with Éra. That may mean gɛdhémɛs coming here in huge numbers in ships, bringing books and a vast flood of knowledge. Some of them will be honest, good people. Some will not. This is the generation that can prepare for that day.”

“I see what you are saying, Mennea. And how can we prepare?”

“Éra must advance. It needs more machines and more schools. The machines and schools will mean changes in the social structure, too. Some changes will be good and some will be bad. This trial is the first test.”

“You are probably right. Your dams, books, and horseless wagons are big changes. They will create opposition.” She considered. “I will need a council to advise

me about these changes: Miller, Mennea, Roktɛkɛstɛr, Wɛrétrakɛstɛr, and the chief priest, Jésunu. As for Sarisunu, he has gotten what he deserves."

36.

Decisions

The family had to head home in a wagon; both rovers had been damaged by the pumping and the Millers had towed one of them home to avoid damaging it further. But Amos didn't look at it that day; no one worked at all. They rested from their physical and emotional ordeal.

The next night was the Nineteen-day Feast. The family had not been observing it regularly once they had non-Bahá'ís living with them, but they decided it was time to start observing it again, but with their Eryanɛ friends, rather like a reflection meeting. Two hours after dinner they gathered in the dining room of the house, dressed in their best clothes. In most cases that meant wearing terrestrial, rather than Eryan, clothes. Present were Mary, Elizabeth, Cristofero, May, Amos, Lua, Behruz, Jordan, Thornton, Lébé, Kwétɛru, Modolulu, Mitruiluku, Diné, and Dhugstɛru. Thornton and Lébé planned a devotional program of Bahá'í prayers in English and Eryani—there were some translated—to which a few hymns of Widumaj were added as an appendix to the program. The family sang a Bahá'í song in English as well. When they finished, everyone turned to Mary, who always served as hostess.

"I am sorry my Eryani is so poor," she began. "I am 81 years old on Gɛdhéma; that's 73 years here on Era. It is difficult to learn new languages at my age. I want to explain this gathering, which Bahá'ís call Feast, to everyone. In the Bahá'í Faith we do not sacrifice animals to worship Esto; instead, our worship centers on celebrating God's word, just like the Eryanɛ singing hymns of Widumaj. So when we worship we recite,

and sometimes sing, the revelation. But worship is incomplete unless it leads to action, so after the worship we talk together about what we want to do to make the world a better place. Finally, after the discussion, we strengthen our bonds of love and fellowship through eating together. Those are the three parts of a Feast. We now enter the second part: the discussion. Who wants to start?"

She smiled and looked at the faces around the room. Dhugstɛru was surprised, in a pleasant way. "I left my village of Dwoakwa for Tripola to make something of my life; and when the luck there was bad I went to Mɛddoakwés; and when the luck there was bad I came to Mɛlwika; and now that my luck is good and I can make something of my life, I am asked to look for ways to help others instead!"

"Yes, because we must help ourselves and others," replied Chris. "Bahá'u'lláh has said one reason we were created is 'to carry forward an ever-advancing civilization.' Another reason is to know and worship Esto. Another reason is to become prosperous so we can expend our wealth on our children and on our fellow believers. These are all reasons to live."

"Widumaj says 'devote your life to your household and help your neighbor,'" quoted Lébé. "It's the same idea."

Dhugstɛru considered. "I suppose my way of making something of my life should also be my way to help others, and helping Modolubu make paper is good for everyone."

"Helping me in the laboratory is also doing good," added Behruz. "You have a talent for chemistry. I need someone to learn everything I can do and teach it to others. Through chemistry we can do much good for others."

"For me, making paper will also be my contribution to all," said Modolubu.

“But how can you make it good?” asked Mary. “Yes, paper is needed and therefore making it is good; you are providing a service. But what if someone can do great good with paper, but can’t afford to buy it? Shouldn’t you give some of it away?”

“Hum. That would be doing good. But it would make it harder to support a family, and some would take advantage of me.”

“That is the challenge,” said Chris. “Doing good means not being cheated. But sometimes you have to take a chance. Many people will say the business arrangement I have made with you is too generous; that I should never set you up independently to make paper. But that is my choice. I hope you will make similar decisions and be generous to others.”

“I see what you are saying,” agreed Modolubu.

Mary turned to Mitruiluku, who saw it was his turn. “I think much of what I want to do is good for others. I want to take our stories, write them down, and help others learn from them. There is much about Widumaj we do not know, but we can still find out. We do not even have the list of kings written down, nor have we organized the facts about their lives. Then there are the ancient stories of dragons like Wɛrétra, and the story of the creation. These must be written down, and now that we have a simple system for writing and paper, it can be done.”

“Yes, I agree, this is a great good to do for all,” said Mary. “But it can be done for two reasons. It can be done to give yourself a place in history, and make a name for yourself forever. Or it can be done as a service to the world. There is a big difference.”

“But how do you know the difference?” asked Mitruiluku.

“Only when the two motives are in conflict,” replied Mary. “If the path to service and the path to fame clash, one must choose the path of service.”

“That is difficult,” said Mitruiluku.

“Yes. Kwétɛru?”

The Sumi hesitated. “For me, the dictionary is both service and a way to fame, and I don’t know how to separate them. Perhaps the decision I made recently to add Sumi to it is an example, though. Many in Mɛddoakwés will be angry.”

“Perhaps that is an example,” agreed Mary. “Though it will result in fame in the Sumi world. I am happy you have done this, because it will guarantee that all people on this world have access to knowledge. Lébé?”

“I love the work of spreading literacy. I have really enjoyed collecting the hymns of Widumaj, for example. I want to continue to edit books. But I also want to help women learn to read and write. Your Bahá’í teachings say men and women are equal and both should be able to read and write. I want to do more to teach women.”

“What do you think we should do about the opposition?” asked Chris.

“I think you are too timid about it! Ignore it!”

“No, we can’t do that,” replied Mitruiluku, who was obviously uncomfortable with the subject. “Husbands would forbid their wives to come to classes.”

“I have long thought we should teach literacy with domestic skills,” said Liz. “Knitting is not done here, and there is surprisingly little embroidery. There are some cooking ideas we could pass on. At the same time we could teach hygiene—ways to wash children, for example—some basic health skills, and literacy. Who could object to those skills?”

“Some men will object to any skills, but fewer,” agreed Mitruiluku.

“We would have to take the classes to the women,” said Lébé. “They can’t come to the school. We could do classes one morning a week in each village near here.”

“And give them a little gift, perhaps,” added Thornton. “We can print out beautiful designs and give them out at each class, then give the women a certificate with their photograph on it at the end.”

“Good,” said Liz. “Diné?”

“I agree with Lébé!” she exclaimed. “As a wife of an old-fashioned husband, I agree with everything she said. But I really want to see us focus more on health. Lua has shown me all the simple things one can do to prevent infection. Here in Mɛlwika many fewer children and adults are sick now. If we could teach everyone these simple things, very few children would die.”

“How could we do that?”

“I don’t know,” Diné replied quickly. But when everyone waited patiently for more, she thought. “I think if people could see germs, they would believe in them more.”

“Maybe we should set up a microscope in the marketplace,” suggested Lua. “And show people the germs.”

“Yes!” said Diné.

“Excellent; we should try that here,” said Mary. “Thornton?”

“I want to devote my life to education. I hope we can set up clearer class levels, though. Right now our educational efforts are chaotic because some people learn fast and are slowed down by others, or the slow ones get lost. Fortunately everyone is still happy for anything we offer, but that may not last.”

“We need to define our classes better, you’re right about that,” agreed Chris. “We should standardize their lengths; right now they tend to go on forever, and some people lose interest. If we had a standard length to them, and at the end we gave the student a certificate with his or her photograph and some sort of statement about the person’s accomplishments, the system would be much more formalized.”

“We’re coming up with all sorts of good ideas!” exclaimed Mary. “Behruz?”

“My contribution to Era will be chemistry and pharmacology. Lua and I hope to start manufacturing vaccines in the next year or so. That will reduce illness a lot. And of course, the contributions of chemistry are enormous, especially once I can find assistants like Dhugstɛru.”

“Thank you,” said Mary. “Amos?”

“My work is well-established already: developing industrial processes, engineering, and practical skills like surveying. These are important skills that Era badly needs.”

“True. Lua?”

“I want to see my clinic grow into this world’s first hospital, with a teaching facility associated with it. We need to be able to train physicians and nurses. And probably intermediate positions as well; various sorts of local health care practitioners. I think we have to collaborate a lot more with traditional healers.”

“How can we do that?” asked Liz.

“I don’t know. I suppose I should start by inviting one to visit and give us ideas.”

“Awsé knows several,” suggested Diné. “But I think they will find our approach to healing to be strange.”

“That’s alright,” said Liz. “We should start talking anyway.”

“May, what about you?” asked Mary.

“I hope what I’m doing now will qualify as service to humanity: helping figure out how to translate Eryani into English and vice versa. I’m also pretty busy with children right now.”

“Children are important,” agreed Mary. “Liz?”

“I’ve been thinking about what Lébé said about educating women, and this agrees with my interests. I’d like to start all sorts of classes for women, like canning, knitting, embroidering, sewing, household duties, etc. There are a lot of important skills we can teach in and around literacy.”

“True. You can count on my help, too. Chris, it looks like you’re last!”

“Except for you, mother. I think my strengths lie in two areas: farming and business, and I think we need to develop both. I’d like to start classes on both. Era has no banks, no accounting systems, no financing mechanisms. We can help by starting businesses like Modolubu’s. I want to start many more.”

“What business would you start next?” asked Amos.

Chris thought for a moment. “I think glass-making. Mɛlwika is small, but it isn’t too small for it. We need glass panes for all the school’s windows. We need glassware for the chemistry lab. I’d like to see a standardized jar made with grooves permanently cut in the side indicating volume measurements and a standardized screw track allowing lids to be put on them. It would revolutionize the world’s markets, not to mention the kitchens. Now, Mary it’s your turn!”

“Oh, alright.” She thought for a moment. “I suppose the gift I want to give Era is the Bahá’í revelation. I think it could be our greatest contribution. But considering the fact that we’re cut off from Earth and the Universal House of Justice, I’d be very concerned that we do it right.”

“You never tell us about your religion,” said Diné. “Many people have asked me ‘what do they believe? What makes them different? And I really cannot answer the question.”

“I am sorry our caution has been confusing or alienating,” said Mary. “But consider our situation. Religions must reflect the needs of the people; not just their spiritual needs, much of which are the same from age to age and place to place, but their social needs, which are very different from place to place. How do we explain that our religion teaches the equality of men and women?” She paused to let the idea sink in. Mitruiluku and Modolubu both looked astonished. “How do we explain that we reject the leadership of an individual, without the consultative principle? How do we explain that we worship without sacrificing animals? And please understand that we do not mean to harm your society—”

“But those ideas are badly needed here,” interrupted Lébé. “This world must change and it has been changing. Your ideas are the ones we need!”

“Not the equality of men and women!” replied Mitruiluku. “That would utterly derange our society. It would undermine our households and the most intimate relationships in our world!”

“Mitruiluku, my husband treats me as an equal and it has not disrupted our marriage!”

"But it has disrupted your ability to function in this world! You are behaving like a man, not a woman, by speaking back to me!"

"By *your* definition of male behavior!" she shot back. "This is an example of how this world must change!"

"Stop, stop, my friends," said Mary gently. "Let me note that this exchange is an example of what I was saying. Our teachings can do harm to this world, as well as help. They can be very controversial. That is why we have stressed our spiritual teachings; they are more universal. That is why we have invited you to our worship, but have not held our usual consultative portion of the Feast."

"But I think there are some spiritual matters we can focus on," commented Chris. "And they are social as well. The Bahá'í Faith has a period of fasting. On Gɛdhéma it occurs just before the first day of spring. That happened three months after we arrived here and it was summer, so we decided not to fast; no one knew us well so we didn't want to do anything strange. But now Era's spring is coming in three months, and this time I think we should fast."

"I was wondering when we would modify the Bahá'í calendar to make it fit the yearly cycle here," added Thornton. "The year here is about 390 days. We could divide it up as nineteen months of twenty days each or twenty months of nineteen days each, plus ten days of Ayyám-i-Há."

"I think the easiest thing to do is add a twentieth day," said Mary. "Because if we added a twentieth month we would have to give it a name."

"On the other hand, we could make Ayyám-i-Há thirty days long, and give the first nineteen days a name of its own," noted Chris. "That would make it easier for us to

keep our birthdays and would make it easier to translate terrestrial historical events into an Eryan calendar. Thornton, your birthday is coming up. Which approach would you prefer?"

"Hum. I don't know. I suppose it would be easier to add a day to every month. If we wanted to convert historical dates into the local calendar, there wouldn't be a huge period of time when no events occurred."

"How old will you be, Thornton?" asked Mitruiluku.

"That's a good question, too. On Gɛdhéma I'd be 19, but here I'd be closer to 17."

"I'm 19, so I suppose on Gɛdhéma I'd be 21."

"Yes," agreed Thornton.

"What other business do we have?" asked Mary. "Because I see no reason our consultation should go longer. I think we came up with a lot of good ideas."

"Yes, I agree," said Chris. "I hope we can implement some of them."

"So do I," agreed Mary. "Shall we turn to the social portion? No Feast is complete without fellowship."

The next day the Mennea family was alone at the breakfast table; only Bahá'ís were present, except possibly Lébé, who had shown great interest but had not actually declared herself. "I hope last night went well," said Mary. "We could have held just an ordinary unity feast, with no business, but I felt inspired to make it more like a cluster reflection meeting."

"I think it worked well," replied Liz. "It seemed like inspiration to me, to include everyone in the deliberations!"

“I made a list of the good ideas last night,” added Chris. “I want to look for someone to make glass here in Mɛlwika as soon as possible. Lua told me she was planning to set up the microscope at the marketplace on market day; and she might even take it to Mɛddoakwés.”

“You’re going to town today, right?” asked Liz.

“Miller and I are going in with the coal wagon; it should leave in a little while, too. There’s no way we can take a rover, right?”

“Give me more time,” said Amos. “I think I can clean out the valves enough to make them work okay. But the other rover definitely needs a spare part.”

“The cost of fighting that fire,” said Chris, shaking his head.

“Please take the Hymns of Widumaj book to Wɛrétrakɛstɛr,” asked Thornton. “In the excitement after I was acquitted, we forgot to give him his copy.”

“We can do that,” agreed Chris. “I’m sure he’ll be pleased to get it.”

“There’s one other matter that worries me, and I had hoped we would talk about it last night,” said Lua. “I’m very worried that we have no spiritual assembly.”

“I am, too,” agreed Mary. “But I think procedure is important. We don’t have nine adult Bahá’ís here in Mɛlwika. Until we have nine, we can’t elect an assembly.”

“How old do you have to be?” asked Lébé.

“Twenty-one Gɛdhéma years,” replied Chris. “So you and Thornton don’t count for two years.”

“Even if we can’t elect an assembly, I wish we’d elect some sort of coordinating body,” pressed Lua. “I think we need one.”

“We could elect officers of a Bahá’í group, and have the group function like an Assembly,” suggested Chris.

“I think that may be a good idea,” exclaimed Liz. “We could get started and build experience.”

“What do all of you think of that?” asked Chris. He looked around at the rest of his family. Some nodded; others seemed to be thinking. “Mom, do you want to put that on your agenda for the next Feast?”

Mary nodded. “Yes, I can do that.”

“Then let’s elect officers at the next Feast.” Chris put down his napkin. “I had better go. See everyone tonight.” Chris rose from the table, put on his coat, and hurried outside.

It was cold, as usual; minus five degrees Celsius, or nine degrees Fahrenheit below freezing. By noon it would be a few degrees above freezing and almost pleasant in the sunshine. Chris walked around the corner of the house to the eastern side, between the Miller household and the iron and steel making facilities. The icehouse was rapidly rising along the right side of the dirt plaza; the basement was already enclosed and the wooden floor of the ground level was finished. In the plaza was the freight wagon, its back heaped with coal, the four horses hitched and ready. Miller was talking to Tritu, who was in charge of the icehouse. Mitru was already in the driver’s seat, waiting patiently.

“Hail, Mitru,” said Chris, climbing up to the wide front seat next to the young man.

“Hail, Honored Mennea.”

“How’s life?”

Mitru rolled his eyes. “Thank God this job takes me away from Diné! She’s such a nag!”

“Maybe there’s something you can do.”

“Maybe. Yimu says I should just whack her. But Manu says that works better when you have two wives than when you have one!”

“When you strike them, they’re not likely to be very loving.”

“Well, they still do their wifely duty.”

“But not lovingly. It’s easy to get wives to haul the firewood, haul the water, take care of children; but if you want them to love you, you must love them.”

“That’s what mom said to me, too. But I’ve tried that too, Honored Mennea! And that hasn’t worked, either.”

“Hum. Is there someone the two of you can talk together? Awsé, for example?”

“What do you mean?”

“To ask for advice. You could meet with her separately or together.”

Mitru was surprised by the idea. Then he shook his head. “No, mom wouldn’t work. Besides, everyone would wonder why we’re talking to her, and everyone would ask.”

“True. Could the two of you speak to Liz and I?”

“Maybe.” Mitru was uncertain.

Miller had started to walk over. “Think about it,” said Chris. He looked at John Miller as the patriarch of the town approached. “Hail, Lord Miller.”

"Hail, Honored Mennea." He climbed up onto the seat as well and Mitru started the wagon forward. "Say, is either rover working enough to help us haul ice? Our old wagon is in bad shape."

"Maybe by the end of day. Amos needs to spend most of today cleaning the engine on our newer rover. He thinks it may be usable after that."

"How badly damaged are the rovers?"

"We're still not sure. Any good garage on Earth could fix either one in a day at the most, once the necessary parts had arrived. But we can't order parts, and if we have to make them it'll take months."

"Could the aliens supply parts?"

"Definitely. They examined the rovers in great detail. If that isn't enough, we could give them the broken part. We sent them an e-mail, and Thornton left a message for Philos. But we haven't heard from them in over a month."

"Strange. Maybe we'll have to make the parts in the blacksmith shop." Miller tapped the wagon under them. "Amos has done a good job of modifying this wagon. The steel reinforcement underneath allows it to carry a much bigger load of coal on a dry road. The new springs make the ride smoother, and the brakes have helped a lot on the hills."

"A lot," added Mitru vehemently.

"What have the wagon makers in Mɛddoakwés said?"

Mitru hesitated to answer Chris's question. "Last week several took a look underneath. They were fascinated and asked a lot of questions. I apologized that they'd have to ask Yimu, because I didn't know."

“You keep answering that way,” cautioned Miller.

“John, you know my view on this,” said Chris, carefully. “You have the génadɛma and all its knowledge, so you really don’t have to worry about competition. Your products will always be better. So you are in a position to be generous. Let the wagon makers copy your designs. Their products will be better too, and everyone benefits.”

“I know that’s your view, but I’m more cautious than you.”

Chris sighed. “Humanity is divided into two kinds of people; those who believe having knowledge and holding onto it is the cause of power, and those who believe power should flow from sharing.”

“But there has always been a shortage of knowledge and of power; then sharing it just strengthens your enemies!”

“But there is no shortage of knowledge in this case. You have access to vastly more than others, and that causes a different danger: that some will try to take it away from you. If you share it, John, you protect yourself.”

“Perhaps,” he replied grumpily.

“John, I’m quite serious. There is danger in your approach. But generosity is a highly respected quality in anyone. Let the wagon makers learn from this wagon. When we start making steam engines, we won’t want to be making wagons anyway. Let someone else make the wagons, and we’ll add the steam power to them. If Mɛlwika suddenly becomes twenty times richer than Mɛddoakwés it will be in great danger. Spread the wealth around and everyone will love you, especially the people in power.”

“Hum. You’re right that we have no plans to make wagons. I had better speak to one of the wagon makers about making wagons for our engines. I’ll make a note of that.”

“Awirékwɛs is Térmér’s second cousin,” Mitru reminded his father.

“I suppose we should keep it in the family.”

“And fortunately you have a very big family.” Chris pulled his coat more tightly around him; it was cold, with the wind blowing on him. The ground was still covered with frost. “I’m planning to visit Kandékwɛs today to thank him for his assistance.”

“You have a gift for him, in your satchel?” asked Miller.

“Yes, of course. I’m also planning to talk to him about iron pipes for the city water system. I’ll suggest they build a big water tower next to the palace inside the citadel and fill it from a deep well with a steam or wind-powered pump, and place big iron pipes under all the city’s major streets, with hydrants or fountains every hundred meters or so. Of course, that would mean they’d have to buy iron pipes from you.”

Miller frowned. “How will you convince him to do that? To Kandékwɛs, an iron pipe is an enormous cost.”

“How much would you charge for that much pipe? We’re talking about several thousand meters of pipe. I asked Amos how big they should be and he said at least thirty or forty centimeters.”

“I’m not sure how expensive they would be. Let’s see; the little pipes we made were a dhanay for every ten doli, I think. Let’s say, 2 dhanay? No, 3. I’d better ask Tritu how much they’ll cost first. It’s a lot more iron, but not a lot more rolling and annealing.”

“Yes, that would be wise. We’re talking about a big order.”

“It’ll be great business for the foundry!”

“Kandékwɛs will probably ask whether we’re planning to install a similar system in Mɛlwika.”

Miller's mood suddenly changed. "So, that's what's going on! Yesterday Amos asked me whether I'd consider paying for a similar system for Mɛlwika! So, now you're trying to get a system established another way!"

"Amos told me your reaction, but I have a different proposition to offer you. Let's say every city on this world wants a water and sewer system in a few years. That's a lot of business. Now if there were one model system, it could be used to sell people on the others. Furthermore, that one system would be a small investment compared to all the other systems put together. Mɛlwika is small; a ten percent surplus on the Mɛddoakwés system would build it."

"And it would be the model. Amos could help build it, so the others were built efficiently and effectively."

"And it would be fire insurance. You can't afford a fire; not only could it burn your house, but your iron and steel works as well. Those works produce a lot of fire and make a major fire more likely. Lua could make sure the water and sewer systems are healthy, to reduce disease. Clean water and the ability to wash yourself and your clothes regularly will cut death from disease thirty to fifty percent. That's why you and your wives only lost a quarter of your children instead of a third; you taught them to wash. With Lua here, child mortality will drop below five percent; with better nutrition, she thinks it'll drop to one percent. That will be an incentive to install the system, too."

"Oh, I don't know. The lords don't want that many poor people. They don't all have jobs as it is."

"But with the dams and irrigation systems they can; there will be a lot more farmland. That means more taxes."

Miller was doubtful. “Maybe they’ll think that way. Tell you what. I’ll come with you to speak to Kandékwɛs. If he wants to build the water system you describe, I’ll build one for Mɛlwika. As you said, a prototype will sell the product. It’s a good business investment.”

“I agree.” Chris smiled, pleased.

They rode on in silence, past the coal pit—which was now a noticeable hole—through Nénaslua, Béranagras, Boléripludha, and Morituora, then finally through the Moritua Gate into the city. The main street to the marketplace had been reopened and construction was going up everywhere. Every bit of straw within miles had been plucked from the fields where it had been left to rot—which it hadn’t, because of the drought—and brought in to keep the brick ovens going. Many people were living in tents.

They stopped to sell the coal, then went to Kandékwɛs’ residence for several hours. They were received with great honor and the lord mayor was anxious to spare his city of future fires. He agreed to install some sort of system, depending on the cost.

They then went separate ways. Chris went to Wɛrétrakɛstɛr’s and then to Roktɛkɛstɛr’s to arrange a meeting of the council the Réjé appointed. Both said the same thing. “You’ll never get Jésunu to participate,” exclaimed Roktɛkɛstɛr. “I’m surprised the Réjé proposed it. He simply will refuse. And the result will be a collapse of the council.”

“I don’t understand,” said Chris. “There are five members; he is only one of them. How can he stop the Council?”

“That’s the way it is. A Council must be attended by all its members, at least for the first few meetings. It is understood that everyone can’t make it to every meeting, but

the first meeting needs to be attended by all, to establish the council. Otherwise, how would everyone know what they will do together?"

"Usually the ruler defines the task," replied Chris.

"But the Réjé didn't."

"Oh, I think she did. She wants a council to advise her about the changes her society can expect from the new knowledge my family has brought from earth. Isn't that clear?"

Roktɛkɛstɛr smiled. "Maybe to you and me, but what if Jésunu has a different view? We need to meet and agree."

"This is strange, to me. What if we say to him that we plan to meet at a certain time and day and he doesn't come? What if we meet without him?"

"Then he can go to the Réjé and complain he doesn't know what we did, and he is on the Council."

"What if we gave him a detailed accounting of the meeting? And the Réjé?"

Roktɛkɛstɛr was surprised by the idea. "I don't know. No one has ever done that."

"On Gɛdhéma we do it all the time; someone keeps an official record of all meetings, especially decisions and the discussion that led to the decisions. I can do that."

"Really? But it would be so difficult to make several copies."

"Not for me. Leave that matter to me."

"Fine. But you'll never get him to agree to come."

"But maybe I should at least try. How would I do that? What would work best?"

"Well, if you want to try." Roktɛkɛstɛr thought for a moment. "Go to the Temple. At the northern end of the courtyard is a series of rooms; they are for prayer,

contemplation, and study. We could meet in one of them, and later Jésunu could not say such a meeting place was inconvenient. They are actually a part of his house, even though they are open to the public. We could meet at sunset; a good time because everyone is usually done with their work, but it is before dinner."

"How would I tell him?"

"Go to the temple and ask for him; he's usually there. If he refuses to meet you, write him a letter. Most people can't do that, but I know you can!"

"But I don't know the old way of writing."

"Then go ask Wɛrétrakɛstɛr to write it for you."

Chris smiled. "That will work! I'll go there now."

"Then come back here for lunch. We must talk more about the dams."

"Fine." Chris rose, thanked his host, and left. He walked across the grounds of the citadel and palace to a little gate opening to the temple. He doubted he could get into the citadel from there, but he could probably go out; and sure enough there was a guard there willing to let him out and then back in.

The gate led straight into the courtyard around the temple. The contrast was almost shocking; the citadel was built of the black basalt of the mountain, while the temple and its courtyard was the pale yellow-white of sandstone quarried nearby. Chris stopped to pay his respects to the statues of Wɛrano and Mitro outside the temple, then entered. Once inside he circled the statue of Saré once, to show respect. While the ritual felt very strange, it was less strange to sing the one hymn of Widumaj he knew: the Hymn of the Lamp, which almost every Eryanɛ knew. It was a hymn about the human heart as the seat of the soul; a mystical work about its yearning for Esto. It felt very right.

When he finished a priest was looking at him from a door at the edge of the room, no doubt astonished that a Gɛdhému knew a hymn. Chris smiled. “May I see Jésunu?”

“Ah. . . Honored, I will inform him of your request.”

“Thank you.” Chris watched the man disappear into the temple; from the sound of things, he was descending stairs. Chris waited patiently, looking at the statue to Era’s old fertility goddess, contemplating the cleverness of Widumaj to insist that the old deities were just attributes of the One Who Is. Well, not all the deities: Ɛndru, the god of war, the Destroyer, who had been the chief god of the Eryanɛ and apparently was still respected by some bands of Tutanɛ, had been declared an evil spirit. His name still existed as a swear word in Eryani.

In a few minutes the priest returned. “He apologizes that he cannot give you an audience.”

“Thank you. Please thank him for me.”

The man nodded and went back down the stairs. Chris looked around; there were still no worshippers in the temple, which was unusual. Perhaps it was the cold; the space was not heated.

He’d have to leave and ask Wɛrétrakɛstɛr to write a letter. But he wanted to pay one last respect to the sacred space. He didn’t know another hymn but he had a prayer book in his satchel. He pulled it out and opened to the Hymn in Praise of Esto, one of his favorites. He didn’t know the traditional tune so he recited it aloud instead, something he had seen when he had visited the temple another time.

It was a long hymn, and he had to read it slowly to avoid making errors in Eryani. When he finished he looked up and was startled to see Jésunu standing in the door.

“I did not know you had learned our hymns.”

“Not this one; I read it.” He held up the book and showed it to the chief priest.

“Why do you read the prayers of Widumaj?”

“Because this is a sacred place, and I respect that. The way to show respect for this place is to sing the sacred songs, so I did.”

“But are these words sacred to you?”

“I don’t know, Jésunu. But I respect their truth.”

The answer satisfied the priest. He stepped out of the doorway and walked to Cristoforo Mennea. “What can I do for you, Honored Mennea?”

“The Réjé has asked you and I, Miller, Wɛrétrakɛstɛr, and Roktɛkɛstɛr to serve on a Council to advise her about the changes her society should accept, and which to avoid.”

“Yes, and Her Majesty’s request is my command.”

“Miller and I are in town today. Perhaps the Council could meet today?”

“My day is very full. There are many new buildings to consecrate. When do you suggest?”

“Sunset. The consecrations will be over.”

“They will, but it is cold outside then.”

“We will come here, to one of the rooms.”

Jésunu was losing his patience. “I’m afraid that will be very difficult. I am too busy.”

“Perhaps you could come just long enough for tea? That would not take long. The tea will keep us warm.”

Jésunu hesitated. “I can try, but I won’t promise anything.”

“Come for tea, your highness, and see what other surprises I can bring you.”

“The hymn was a big one!” replied Jésunu.

———————————————-

The four of them came to the Temple at sunset. Wɛrétrakɛstɛr was accompanied by a servant who carried a charcoal brazier into the room; Mitru carried a huge pot of boiling water. Miller dipped heavy clay mugs in, filled them up, and passed them around. Each added tea leaves and honey and held the cup in one hand or another to keep them warm.

“I’m sure he won’t come,” said Wɛrétrakɛstɛr. “It’s a certainty. I’m not sure what the point of this meeting is.”

Chris reached into his pocket and pulled out a cellular telephone. He punched in a number and it began to ring.

“Hello?” It was Thornton’s voice.

“Are you ready to record?” asked Chris.

“Yes, I’m pushing the buttons.” There was a pause. “Recording.”

“Thank you. My friends, this telephone will pick up everything we say, and Thornton’s computer is recording it all. By recording I mean we can push some buttons later and hear every word, in your voices. If Jésunu is unhappy he did not attend, I can take a machine to him—or to the Réjé—and play the entire conversation back to him. Furthermore, I have been trained to keep a record of meetings and will produce an official written document.”

“In the old alphabet?”

“I can do that. I have to take the notes in the new alphabet, but we have people who can rewrite it in the old system.”

“Mitruiluku,” agreed Wɛrétrakɛstɛr. “Then where do we start?”

“Maybe with this.” Chris picked up the hymnbook he had brought with him. “This is the new hymnbook Thornton and Lébé have put together. It has every hymn that we believe Widumaj taught the people.” He opened it and flipped through the pages. “It is in the new, simple writing system, and it is accompanied by pictures that help the reader recognize the hymn. If someone knows the hymn and is smart, they can actually teach themselves to read and write in the new system; that’s how simple it is. I’d like to see a copy of this go to every city, town, and village on Éra. Eventually, I’d like to see every city, town, and village have a teacher who can use this to teach reading and writing.”

“We’ve discussed this many times,” said Wɛrétrakɛstɛr, nodding.

“But what is the point?” asked Roktɛkɛstɛr.

“In the hymn of the Child it says every child must learn the hymns of Widumaj. This is the way to do it.”

“But who would pay?” asked Roktɛkɛstɛr.

“That is the problem. I would like to suggest that the Réjé pay for twelve people every month to come to our génadɛma for one month of intensive classes. In a year we could teach enough teachers to teach in half of Era's towns and villages. Afterwards the town or village would pay them to return one month a year to learn more. I figure the cost would be one and a half dhanay per day per student; 18 dhanay per day for twelve, or 648 per month.”

“All to teach some hymns?”

“But the teachers and their pupils could also write letters, open businesses, and do many other new things. They would learn to write new books, and would become interested in learning more things. They will change the entire world.”

“That’s what I’m afraid of,” said Roktɛkɛstɐr.

“That’s the way it is on Gɛdhéma,” replied Wɛrétrakɛstɐr. “Everyone can read and write. As a result they can educate their people, and educated workers can make machines that ignorant ones can’t.”

“Is that true? Can you make steam engines with workers who can’t read?” asked the general.

“We can, but it is easier if they can read and write, because they can be trained better. Complicated processes require very advanced skills, and they require an understanding of what is happening. That means classes, and if you can give the workers books to read, and then make them write down answers afterward, they can work much more efficiently and accurately.”

“In Mɛlwika, many of the men in the foundry can read a little,” added Miller. “They are better workers as a result, and I can pay them more.”

“I see.” Roktɛkɛstɐr digested the information slowly. “But how would we bring people from all over the world to Mɛlwika? How would we select the people to be trained? And if you give them a month of training, is it enough for them to teach for a year?”

“Excellent questions,” replied Chris, with a smile. “First, I think we will have steam wagons working within six months. A steam wagon can travel from here to Ora in twelve hours, including a brief stop in Anartu. It could travel back here via Néfa and

Bɛllɛdha in about twenty hours; via Tripola in twenty-four hours. If we have three steam wagons we could run on those routes constantly. It would revolutionize transportation on this world and make it reasonably easy for anyone to travel from city to city."

"I wonder whether we want that," exclaimed Roktɛkɛstɛr.

"It will change life here. It will also mean the Réjé will have much better control over the world, because she will always know what is happening, and can tell the local lords what to do. The local lords will be upset about that.

"But that is just one part of your question. How would we select the people to teach, you ask. We'd start with people in the big cities and bring them to our school. We know those lords; they would choose the teachers. The lords of smaller districts would then want teachers too, and would select teachers for their villages. Then each city would establish a teacher training center, so that much of the training would be within walking distance of the teacher. And what would they teach? We would send them materials every few months. To do that, we would use the steam wagons and ask the teacher training centers in the bigger cities to hold the materials."

"Honored Mennea, tell Roktɛkɛstɛr about the post offices," said Wɛrétrakɛstɛr, excited.

"On Earth every city and village has a place where letters are collected. If you want to mail a letter to someone you take it to the *post* office and place the letter in an envelope, write the name of the recipient and his street and city on the outside, seal it, and pay a standard amount for the letter to be delivered. The post office sends it to the post office in the recipient's city, and a messenger takes it to the recipient."

“Really?” Roktɛkɛstɛr was surprised. “So, on Gɛdhéma everyone can read and write, and everyone can send letters to everyone else?”

“More than letters. On Gɛdhéma the system is very, very reliable and everyone trusts it. So someone can live in a small village and manufacture something that everyone in the world might want—for example, beautiful children’s clothing. In every city there are daily papers produced that tell the news and for a fee they will carry information about your products. So you buy some space and tell people about the children’s clothing you make, with little pictures of the designs and the prices of each. People write to you asking for clothing, send the money through the mail, and you send the people the clothing they want through the mail.”

“Extraordinary.” Roktɛkɛstɛr shook his head in disbelief.

“I doubt the Réjé will agree to pay 648 dhanay per month to train teachers, though,” said Wɛrétrakɛstɛr.

“Perhaps. But would she object if local lords paid? The lords of Nénaslua and Boléripludha have both said they are willing to pay us to train teachers. The project to build dams on the western shore will take me to many villages, where I can speak to many lords. The lord of Ora is interested in sending people to the school.”

“We can discuss that with her,” agreed Roktɛkɛstɛr. “And perhaps she would be willing to pay half the cost of the program.”

“That would work,” agreed Chris. “I could ask the local lords to pay some, and find additional funds from patrons.

“Now let me raise a different matter. As you know, the aliens put us here on Era almost a year ago. Because we had equipment, and because we are a family, and because

of changes on Gɛdhéma, we were treated differently than most people who were brought here. Until recently the aliens could visit Gɛdhéma, but now Gɛdhéma has better machines and many more people, so they no longer visit. It was an accident that brought an alien to Gɛdhéma and another accident that we saw him. Because the aliens no longer visit Gɛdhéma they wanted to talk to us about its people, and wanted to examine the equipment we had with us. So we bargained with them; we would tell them about Gɛdhéma in return for things. We asked them about this world and when they said it was dry, we asked for the hoses and pumps that we used to put out the fire. We asked them for paper; that's why we had so much. We asked them for medicines and seeds, and all those buckets that people bought shortly after we arrived. Since coming here, we have been able to remain in contact with the aliens using these telephones." Chris pointed at the phone on the floor at the center of their discussion. "They have asked us questions about Gɛdhéma and about human beings, which we have answered. They now owe us more things."

"What can they give? Steam engines?" asked Roktɛkɛstɛr.

"We asked them for rovers, and they refused," replied Chris. "But I want to ask them for parts to repair the rovers, because right now both of them are broken. We've asked them for special tools to be able to make things. We've asked for more paper, and when they didn't respond we started making it ourselves. The génadɛma will remain in contact with them and will receive items from them if they cooperate. I have stressed to them that I believe they have a responsibility to this world. They put all of us here, you know. Your ancestors came here from Gɛdhéma."

"But we have an old story of how Esto made this world," objected Roktɛkɛstɛr.

“That is a story about how Esto made Gɛdhéma,” replied Chris.

“And there are stories about how our people came here,” added Wɛrétrakɛstɛr. “But they have become mixed with the creation story.”

“This is extraordinary!” exclaimed the general. He was uncomfortable with the account; so was Miller.

“If it is the will of the Réjé, we will cease contact with the aliens. But I think that would not be wise. Remember, the aliens told us that in 100 years or so, Gɛdhéma will have developed the ships to travel here, and when that happens the aliens will tell Gɛdhéma of themselves and of Era. So we have 100 years to get ready. Contact with the aliens is the key to it.”

“Can we actually meet these aliénɛs?” asked Roktɛkɛstɛr.

“Yes, if you wish,” replied Chris.

The general shook his head. “I need time to think about all of this. I still cannot *understand* it. It seems impossible.”

“This is what I have been saying for months,” said Wɛrétrakɛstɛr. “And everyone in the court just said, ‘oh, the widu has more stories.’”

“These are amazing stories!”

“I will write down everything we discussed,” said Chris. “When Thornton and Lébé come here in two days they’ll bring copies for both of you, Jésunu, and the Réjé.”

“Give Her Majesty's copy to me,” said Roktɛkɛstɛr. “I will see to it personally that she reads it. She can now read your new system of letters, so you can send it in that form. But not Jésunu.”

“I understand,” agreed Chris. “Shall we meet again next week at the same time?”

37.

Supplies

Chris had quite a story to tell his family that night. “All the way in I was telling Miller how his actions would get us killed, and all the way home he told me how mine would get us killed,” concluded Chris. “And he may be right; the fact we are in touch with the aliens will be a shock to the Réjé and her advisors.”

“Miller couldn’t have been happy about your reference to machine tools or anything else he’s benefiting from,” said Liz.

“He was furious! Any knowledge from them, arguably, is collective knowledge, not private knowledge. He’s making a profit off of it. The Réjé might be upset about that, too.”

“Well, you told him to be generous,” added May. “Maybe now he will be.”

“Don’t count on it,” replied Lua.

“At least you got him to agree to the water and sewer system,” said Amos. “That was brilliant.”

“I appealed to his pocket. All the way home, by the way, he was also complaining you had laid out such a large enclosure. The fact that the southern enclosure will follow natural geographic boundaries did not appeal to him. He also did not like the idea of enclosing the peak above town because he said we’d never get anyone to live there. I kept reminding him that if we pumped water to the top and supplied water to the houses on the slope, no one would mind, but I think he couldn’t imagine a water supply up there.”

“He’s been away from Australia too long,” said Liz.

“Hey dad!” Thornton suddenly came down the stairs. “Hey dad, I just got an e-mail from Philos! They’re supplying us with the things we requested!”

“Really?” exclaimed Chris. He took the printed e-mail message as soon as Thornton reached the table. They all gathered around to read it.

“I can have the broken parts ready by tomorrow, as they request,” said Amos.

“Good. It sounds like you’ll have everything fixed in a few days. That’ll help,” said Chris. “But why now?”

“I can try to call.”

“Let’s do that,” agreed Chris. He rose from the table. He and Thornton walked to the nearest rover, which had a cellular telephone stored in it.

Thornton picked up the telephone and punched 777-7777. They waited for it to ring and ring. Then there was a click.

“Thornton, is that you? This is Philos.”

“Hello Philos, this is Thornton, and my father is with me, too.”

“Then you got the message that we’ll provide you the things you requested? I apologize for the delay, but there has been quite a bit of discussion for several weeks in order to arrive at a policy.”

“And what is that policy?” asked Chris, whose head was pressed up against the phone as well. Thornton handed him the telephone.

Philos heard his question. “Our policy was set just a few days ago: that we could not make any large interventions into Eryan society without some sort of consultative relationship established with the queen and her government. That is for your safety as well as the ordered development of the entire world. The irony is that no sooner did we

make the policy—before we were even able to communicate it to you—Mɛddoakwés had its fire and the queen decided to set up the development council. We knew this because of your cellular telephone calls. And when you called home about your meeting, we heard the council had approved of your desire to ask us for more items. So we are sending them to you."

That also proved that the aliens were listening to their calls; something Chris had assumed, even if he was unhappy about it. It was the cost of having telephone service. "So you want the items we need to get to you to be in our barn at the time of the eclipse?"

"Yes. Is that possible?"

"Of course. I think we will probably give you a tire as well, if that's alright; we need new ones."

"Yes, that's fine. Your original list and the additions were approved. In fact, we've been working on the requests since they were received; we don't have a lot of resources down here on Skanda, even if, to you, we seem to have a lot."

"Now, what else can we ask for, Philos? What are the limits?"

"We still won't make entire rovers for you. In general, we are willing to give you things that will allow you to make other things. But the parameters haven't been defined. You have to ask us for things, for us to set policy. And who asks has a lot to do with our response. An individual request will receive less consideration than a university, such as yours. A university will receive less consideration than the government of Era. If the government of Era asks for something huge and demonstrates responsibility toward its use, it might get large items; rovers or even more."

"I see." Chris was thinking and nodding at the same time. "Your policy is very wise. It will force the government to be involved, and responsibly. Could you give us this policy in writing?"

"In writing?" Philos was surprised.

"Yes, in writing. In Eryani."

"Our ability to translate into Eryani is extremely limited. If we had permission to use the dictionary you are creating, it would help considerably, but that dictionary is still small, compared to what we need."

"Then create a document in English and we'll translate it. If we want responsibility I suppose that includes transparency; in other words, rule by law and contract. And that is best done in writing."

"Yes, you are quite right. I will pass your request to the commander of the station. I think he will accept."

"Thank you. We'll move the items we need repaired or replaced to the barn tomorrow, before the eclipse, and then clear away."

"Thank you. We will need three or four days to make the parts you request. The first flight will have half the supplies you requested; the rest will be on the second."

"Fine. Thank you, Philos," said Chris. "Here's Thornton again."

He handed the telephone back to his son. "So, Philos, are you married now?"

"Yes Thornton, I am! I went back to our home world, defended my dissertation—well, the first half—and got married. My wife is now here with me. I also have permission to remain here as part of the staff after my degree is finished, and my wife has an assignment here as well, studying Skandan microbiology."

“Fantastic! I really do hope the time will come when the four of us can get together as friends.”

“Well, not soon! But maybe some day, yes.”

“Good. It’s good to talk to you again. If you have more questions, send them to me.”

“There’s a backlog of questions that I’ve received; I have to get them translated into English. They will take you more than a day to complete, I think. We’re grateful for your assistance.”

“Your questions are fascinating; May has been treating some of them as college exercises for me, so they have been part of my education as well. It’s good to talk to you, Philos.”

“I enjoy talking to you too, Thornton. Goodbye.”

“Bye.” Thornton hung up the telephone and turned to his father. “I guess that fire has proved to be more of a breakthrough than we thought.”

“Yes, it was. I suppose we should thank God everything worked out as well as it did,” agreed Chris.

The next morning they drove to their farm and loaded the barn there with rover parts that required replacement. It was surprising how much needed replacement; Amos had laughingly commented they were asking for half a rover. He also gave them a few drops of motor oil, in the hopes they could give him many gallons of the stuff. The last year had been very rough on their vehicles, which would be as good as new in a week or two if the parts were provided.

In late afternoon the eclipse came and went. To keep himself busy, Thornton timed the eclipse; he and Amos tried to time it every week or so. When the light returned they drove back to the barn; the parts were gone and there were several large boxes.

Miller saw them driving back, inferred what had happened, and came into the courtyard with them to watch the unloading of the boxes. “Did they supply the machine tools?” he asked.

“They said they would today or at the next visit,” replied Amos. He had already opened the first box; it was filled with glassware for the pharmacological lab Behruz and Lua planned to set up. The second box had inkjet cartridges for Thornton and some medicines Lua had requested. He opened the third box. “Here they are, John!”

“Let me see!” Miller came over and helped Amos pull items out of the box, each wrapped in brown paper-like material. He laughed with joy. “Is it everything?”

“I think so! These are for the metal lathes we want to make, and these are metal cutters. Here’s the head for the small steel press.”

“Fantastic! Can we make the turbine, the electric generator, and the steam engine now?”

“Oh, yes! This stuff is invaluable! It’ll take Tritu, Yimu, Manu, and me a few months to figure out how to use them, but after that we’ll be in the metalworking business!”

“Great! I’ll tell the boys to come down right away and take the stuff up to the metal mill!” Miller headed for the door at a rapid clip.

“Boy, he’s excited he’ll be making money,” said Liz, as she watched Miller leave.

“He’s about to drive every blacksmith on the eastern shore out of business, too,” added Chris. “And I doubt he’s realized it yet.”

“All of them?” asked Lua skeptically.

“Well, he’s about to change what they can do, because he’ll be able to do some things much better and cheaper,” replied Chris. “And that will make the Miller family incredibly rich.”

“I wish he’d share that with me,” said Lua, looking through her supplies. “I’ve got the dental items I ordered here; the amalgam to fill teeth, the antiseptics, the nitrous oxide, even the ceramic mixes to make artificial teeth. I don’t see the optical stuff, though.”

“Next shipment,” replied Amos. “I’m sure they’ll send it.”

“I hope so; dozens of people here have correctable eyesight,” said Lua. “And one is Miller himself. I think I’ll charge him some extraordinary fee for bifocals!”

“Be careful,” said Chris.

“Oh, I will. I’ll offer him two fees. One will be huge and will include the name ‘Millɛr Public Hospital.’”

“That’s the way to do it,” agreed Chris. “Did you get everything, Thornton?”

“I’m not sure, yet, but I did get a lot of the stuff we needed.” Thornton was counting boxes of inkjet cartridges. “This will allow us to remove our rationing priorities on printing. That means we can start printing calendars, photos of people, and other money-making jobs.”

“That’ll help the university,” said Chris, pleased.

Three days later Thornton, Lébé, Mitruiluku, and Kwétɛru went to Mɛddoakwés for their weekly visit to Wɛrétrakɛstɛr's class. Thornton had a few errands; he had to drop off copies of the minutes Chris had written up of the meeting. He did not have to give a set of minutes to Jésunu, because one of the students, Wɛranodatu, was his son. Thornton had forgotten that fact, until his recent run-in with the priests. Wɛranodatu was clearly uncomfortable being around him.

Thornton brought four more copies of the book they had put together and promised a dozen more next week, now that they had paper and ink. They reviewed one of the more obscure hymns, of which there were several variant readings; most felt Lébé and Thornton had made a few minor errors in the standard reading, so Lébé made some notes to change the wording. After more than half a year of participation, she was now more or less accepted as a member of the class.

Then Sarébɛjnu, one of the other sons of a priest, offered his reconstruction of the dates in the life of Widumaj. He began with a list of all the monarchs who had lived in between, with the lengths of their rule. At that point Lébé spoke up. "How many years ago, then, did Widumaj pass?"

"I figured that out," replied Sarébɛjnu. He looked at his notes, written on a sheaf of paper in the new alphabet. "I figure he ascended 487 years ago."

"And he lived 71 years?" asked Thornton. The traditional age of Widumaj was well known.

"Yes, correct," said Sarébɛjnu. "And all the traditions agree on that."

"Then he was born 558 years ago. I ask because we are preparing calendars—" Thornton used the English because there was no Eryani word. "Which is a little printed

booklet where every month has its own page, and on the page every day has a little square with its own number. I know this is the 35th year in the reign of Queen Duktɛrésto, but I also wanted to give the year a number."

"Historians need a system of writing dates, and the logical system to use starts with the birth of the great widu," agreed Sarébɛjnu.

"But what about events before him?" asked Kwétɛru, no doubt thinking about the long history of the Sumis.

"One can express those events as occurring so many years before the birth of Widumaj," suggested Thornton.

"If any of those events can be dated reliably, even the major events," added Wɛranodatu.

"Well, I am interested in the kings before Widumaj," replied Sarébɛjnu. "There are at least eight Eryan monarchs who reigned before Widumaj. There is the conquest of Mɛddoakwés, which occurred maybe fifty years before Widumaj's birth. There is the conquest and destruction of all the various Sumi cities."

"And the beginning of the great drought," added Thornton. "We'd like to be able to date that."

"I'm curious about the conversion of the Mɛddoakwés priesthood to the religion of Widumaj," said Wɛranodatu. "There are legends about that, and I think the priests have some old documents."

"There is a vast amount of information in Anartu, written in Sumi on leaves," added Kwétɛru. "I know this doesn't interest many of you, but there is some information

there of interest to all of you, because the Sumi records also describe the Eryan conquest."

"But who would be interested in Sumi accounts!" exclaimed Wɛranodatu, with a smirk on his face.

"Not just Sumis," replied Thornton, rather strongly.

"Let's resume the presentation," urged Wɛrétrakɛstɛr.

Sarébɛjnu continued his presentation on the life of Widumaj. Questions followed until lunchtime. After finishing his bowl of soup, Thornton walked over to Wɛrétrakɛstɛr. "I have a copy of the meeting report for you," he said, handing the prophet-philosopher a stack of papers folded in half. "And a copy to give to Jésunu, via Wɛranodatu. Also, a copy for Roktɛkɛstɛr; I have to deliver that to him now."

"Yes; go." He opened the report and looked at it. He nodded. "Your father has done a very good, thorough job. And someone edited his Eryani?"

"Yes; Lébé."

"It shows. You have a copy for the Réjé? I can deliver it."

"Yes." He handed it to Wɛrétrakɛstɛr, who looked at it quickly as well. "These machines you have for making copies of writing are marvelous. I wish we could have one."

"We only have one. We now use it almost constantly; Kwétɛru uses it all night, every night."

"That explains why he sleeps in my class." Wɛrétrakɛstɛr felt the swollen side of his mouth. "Have you a machine for fixing teeth? I have terrible pain today."

"My sister can fix it if you come to Mɛlwika. What is it? A cavity?"

“Yes, and more; an infection. I have to have it pulled, I’m sure.”

“Probably, but she can do that too, and without pain.”

“Really? Maybe I should come with you tonight, and walk back to the city tomorrow.”

“Oh, I have a question for you. Why is he ‘Widumaj’ rather than ‘Widumaju’?”

Wɛrétrakɛstɛr smiled. “Yes, his name breaks the rules of grammar, doesn’t it? The prophet wanted everyone to call him Mitrusunu; his father was named Mitru and out of respect for his father, and humility, he wanted to be known simply as his father’s son. His followers refused and referred to him as Widumajo, which he found insulting; he said only Esto could be given such a title, if such a title were possible for God. It was impossible to get his followers to call him Widumaju because they insisted he was more than a man. So he compromised on ‘Widumaj.’ In the old language such a name was possible; ‘patɛr’ isn’t ‘patɛru’ and ‘matɛr’ isn’t ‘matɛré’ after all.”

“Ah. Do you think anyone will object if we start printing calendars giving the date since Widumaj?”

Wɛrétrakɛstɛr considered. “No, I don’t think so. Actually, I think everyone will appreciate it. We need a way to record dates. Let’s hope Sarébɛjnu calculated the times of Widumaj correctly!”

“I had better go,” said Thornton. He headed out of the house to find Roktɛkɛstɛr. When he returned—after an inordinately long conversation with the royal engineer—Kwétɛru was presenting about his dictionary, a project that showed no signs of ever ending. It was followed by a long presentation by Wɛrétrakɛstɛr about humility, full of quotes from hymns.

Thornton, Lébé, Mitruiluku, and Kwétɛru left the class at sunset, as usual. Wɛrétrakɛstɛr was not with them; Thornton had said if he came up on the coal wagon in the next day or two, he'd drive the widu home, so Wɛrétrakɛstɛr had decided to go later. They walked out the gate to wait for the rover—the one functioning rover they had—and while waiting a woman with two small children walked up to them. "Are you waiting for the rovɛr to Mɛlwika?"

"Yes, we are," said Thornton.

"May I ask you some questions about Mɛlwika? Is it true that I could get a house there?"

Thornton was surprised by the question. "I think so."

Lébé was surprised by his response. "Has Amos ever given a house lot to a woman?"

"No, but none has asked."

"But it's against the law, I think," said Lébé.

"It's not against the law," replied the woman sharply. "But it is just not done. My husband died a few months ago of an infection after the harvest. My parents died long ago, his parents are also dead, and my sister lives far from here. I have no brothers and no brothers in law. My landlord here in town says I can't continue to rent from him because only a man can rent from him. And the man whose land we were farming says I can't farm it because he can't make a rental agreement with a woman. So what am I to do? I was hoping Mɛlwika would be different."

"I think it is different," said Thornton. "Can you farm?"

“Of course I can farm! I have two strong hands!” She raised her arms to show two strong, deeply calloused hands. “This year I did as much work as my husband, and I am still recovering from giving birth to Mɛlité.” She pointed to the two year old now clinging to her leg. “I really can do anything that is needed. I’m good at sewing, I can clean, I can cook. . . someone must give me a chance!”

“Of course,” said Thornton. He looked at Lébé and switched to English. “I don’t know what to say to her. I think if she wanted a house lot, Amos would give her one. I think we’d even give her a piece of land to farm; he’s been assigning it to arrivals, too.”

“But the law says anything a woman owns belongs to her husband or father. If she hasn’t got a husband or father or brother, no one can own anything for her. Really, she should get married to someone; that’s the solution.”

“But how easy is that, with two children? Most husbands would say she’d have to abandon them,” said Kwétɛru.

“I also know Lua is frustrated that she can’t rely on any women to work for her,” said Thornton. “Diné has been a great help and very reliable, but soon she’ll have her baby. I bet this woman could work for her.”

“Maybe,” said Lébé skeptically.

“Lua needs someone who can read and write, too,” said Kwétɛru.

Thornton turned to the woman. “Would you be willing to learn to read and write?”

“Honored, I would do anything to feed my children!”

“Have you ever nursed anyone sick?”

“Of course; my husband, my mother, and a little brother who died when I was 13,” she replied. Thornton realized he had asked a useless question because on a world where life expectancy was 30 years, everyone nursed sick people.

“I’ll tell you this, then. I think Amosu, who is in charge of the house lots, would assign one to you; and I think he would assign you land to farm, too. Furthermore, I think my sister, who is a healer, would be interested in speaking to you about assisting her, because she always needs help.”

The woman’s eyes opened wide. “A woman healer! I would be glad to help her! It would be a great honor.”

“Then you should come to Mɛlwika.”

“Is it true that anyone can ride on the rovɛr?”

“Yes, we give a ride to anyone who needs it. When the weather is cold, like this, we try to put everyone inside because it is warm.”

“If we go to Mɛlwika tonight, Honored, is there a place we could stay the night? We can always do some work to repay the kindness.”

“Yes, I can arrange for you to stay in our génadɛma. It has room for students, but it still has no students living in it. But surely you can’t come now?”

“Why not? I have a small room in my landlord’s house. He will watch it while I am away. I have my harvest there.”

Thornton looked at the two children; one was about 2, the other perhaps 5. They both had blankets wrapped around them and looked cold. Both had runny noses; quite common for Eryanɛ children in the winter because of lack of heat and poor nutrition. Both were barefoot and stood on a corner of their blankets to warm their feet. It occurred

to Thornton that the woman was very poor; her other possessions in her windowless room would consist of a cooking pot, three or four clay pots for eating, a few gourds for storing water, maybe an old chamber pot, perhaps an extra cloth for one or the other child to wear when the clothes were being washed, and perhaps her husband's farming tools. In a stone-lined hole in her floor she would have grain and dried vegetables stored for the winter. She had a sack tied to her waist; it probably had a pot in it containing a few day's flour and lentils. She could pour some of the contents into the pot, add water, boil the mixture over a fire, and feed her children with a single spoon, probably also located in the sack. That was how people traveled.

"You are welcome to come with us to Mɛlwika," Thornton said. "And stay the night in our génadɛma. Tomorrow you can speak to my sister, the healer. If she has no need for your help or if it is impossible for you to rent a house lot, in two days there will be a coal wagon going back to Mɛddoakwés. I'm sure you and your children could come back here on it."

The woman smiled. "Thank you, Honored!"

"What is your name?" asked Thornton.

"Saréidukter. I really can do almost anything, Honored!"

"And what is your age?"

"Twenty-four years, Honored."

"What have you farmed?"

"Wheat, winter and spring; lentils, pumpkins, gourds, beans, peas, just about everything, Honored. Do you think I can get land, too?"

"Perhaps."

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Thornton helped Saréidukter and her two children settle into the génadema for the night. Lua went over and talked to the woman immediately; after a half hour conversation she hired her as a nurse. Child care was easy to arrange through the women of the Miller household, who would watch children for free when they weren't in school. Saréidukter was startled by the idea her children could go to a school and was puzzled that there was anything worth teaching them for half the day, five days a week. Amos took Saréidukter over to the south enclosure—which was not yet enclosed, but a dozen buildings had already started going up there—and showed her a lot in the light of a full Skanda. She was thrilled and grateful, especially when he said farmland was also available to her.

The next morning Thornton and a crew of as many people as could be collected helped cut and haul ice blocks to the icehouse. The reservoir had quite a thick ice coating on it—fifteen centimeters—but warmer weather and rain appeared to be on its way. By noon they had cut and hauled three loads of ice using the rover's trailer, and the icehouse was mostly full. That evening the rover was needed to retrieve items that the aliens had brought down during the eclipse, so Thornton drove over to the barn on their farm and brought back five large boxes to the house. They gathered to open them.

"My optical equipment!" exclaimed Lua gleefully. "And I've got enough standardized glasses here to last a long time!"

"And Miller will have the rest of the standardized set of machine tools we ordered," said Amos, unpacking another box. "We can now make almost anything."

"And drive anywhere," added Thornton. "This box has the spare rover parts we ordered."

“All of them?” asked Chris, surprised.

“No. The tires we ordered are in that big box.” He pointed to a huge cardboard box still on the trailer.

“That’s eight?” asked Amos.

“Complete with hubs!” replied Thornton. “You gave them the entire wheel assembly, so that’s what they duplicated!”

“Really?” Amos hopped up onto the trailer and looked into the box Thornton had ripped open. Then he laughed. “That’s good of them!”

“What will we do with all these supplies?” asked Liz, looking for a place to put them.

“We’ll get to work with them,” replied Chris. “We can now make a génadɛma better able to help Éra than ever before. That’s even more true of our health facilities.”

“Yes, I can do much, much more now,” agreed Lua. “These supplies are a blessing.”

“Indeed, let’s hope they continue to be,” said Chris.

38.

Birthday

The next few days the weather began to warm up a bit. Every day the temperature climbed above freezing early in the morning; during midday no coat was needed. Every day someone showed up in Mɛddoakwés wanting a house lot; adobe walls rose a foot at a time, with thatch put over them every night to keep them dry. It rained or snowed slightly every night.

Amos was overwhelmed with things to do; he pressed Thornton and Mitru into service to help him, especially since the wetter weather and muddy roads made it almost impossible to haul coal to Mɛddoakwés. Thornton and Mitru, together, were able to fix the two rovers and install new tires. Amos popped in every hour to make sure they were doing alright; he was needed at the iron works, installing the metal-working tools.

Behruz was busy setting up the new pharmacology lab in an unused classroom. Lua unpacked her medicines, optical equipment, and dental materials, and trained Saréidukter to serve as a nurse. It was not easy; it meant explaining cleanliness to her and getting her to wash regularly. Furthermore, she had to build her adobe house every day at midday; that meant coming to work in the morning, washing there (because hot water was unavailable anywhere else in town), then returning and washing again in late afternoon. Diné worked at midday; Saréidukter's two little daughters stayed in the Miller household with other children while their mother worked.

Having reliable help allowed Lua to expand her public health work. One warm afternoon when she had no patients in the clinic, she and Diné went to the marketplace in

front of the garrison tower with her portable microscope. A box with several mirrors focused sunlight on the specimen and kept it warm.

Most of the town's men were out working, but women were around with their children, and the soldiers were there. One by one they came to visit and look through the microscope at various items. After showing them what cloth looked like—the fibers were easy to see and appreciate through a microscope—she showed slides with protozoa on them, and explained germs. Most people were a little skeptical but fascinated. The fact that one could actually recognize some illnesses from the creatures one saw through a microscope intrigued some mothers.

Diné was busy showing people the different slides and repeating Lua's explanations while Lua, inevitably, was asked to check a child's runny nose or cut. She had brought her black bag and was able to treat several illnesses, though much of what she saw related to parasites—especially worms—or nutritional deficiencies such as mild scurvy (the winter diet of dried grains and lentils provided carbohydrates and protein, but little vitamin C). Fortunately she now had anti-worm medicine, though she had no fruit rich in vitamin C, and no vitamin pills. The women were sometimes willing to be examined as well; their problems, in addition to bad nutrition and worms, included bad teeth.

Estoibaru came along and looked through the microscope with his one good eye. It took quite a while for Diné to focus the microscope for his eye; it was bad. He listened to her explanation and asked questions. Then he stood up and watched Lua complete her examination of a child. When she finished he greeted her. "Greetings, my lady. I am

fascinated by this *mikroskopi* of yours." He said the word slowly. "And it is true that you can see small animals that cause illness?"

"Indeed. Diné was repeating the explanation I was giving people. I will give you an example. Today I looked at eight children, and almost all of them have worms. Their mothers told me because she could see them. Sometimes the worms are very small, but visible. Think of the germs"—she used the English word—"that give you a cold as being worms that are too small to see."

He nodded. "I can understand the example; it is very good. Especially because I can't even see worms!"

"Yes, your one good eye is not that good, is it?"

"No, it is not, but I am grateful to Esto that I can see at all."

"Indeed. I can now help you, though. Wait." Lua reached into her bag and pulled out a box filled with lenses. She flipped through them and pulled out a particularly thick one. "Here. Hold this like this." She put the lens in front of her eye where an eyeglass would hold it.

He took it and put it where she said. He was surprised. "Wow, I can see!" He held the lens in front of his eye and looked around at the world around him.

"Let's try a few others." She picked up an even thicker lens. "Better or worse?"

"Hum. The other one was better."

"Then try this one." It was thinner.

"Even better."

"And this one."

“Hum.” He looked around for a while, then tried the other one. He held up the other one. “This is best.”

“Good.” Lua took a frame from her bag and took the lens back. She inserted the lens into it and tightened the frame with a little screwdriver. Then she put the frame on to demonstrate and handed it back to Estoibaru. He put the glasses on and looked around, smiling.

“This is amazing! What magic is this?”

“It’s not magic; it’s science. Your eye already has a lens, just like the glass, but it is getting old and doesn’t work right. The glass provides a correction; that’s all. You can have them.”

“I can?”

“Yes, of course. That lens was an extra; I don’t need it. Let me show you something else.” She held up her hand in front of his face with her five fingers extended straight. “Tell me when you can’t see my hand clearly.” And she began to move her hand closer to him. When it was about a foot and a half a way he stopped her.

“About here.” He took her hand and moved it closer, then farther, then stopped.

“That’s pretty good. The older you get, the harder and harder it will be for you to focus close up. But I can fix that, too. First you wear those for a few days and tell me whether you like them.”

“I will. I am very grateful to you. May Esto bless you! With these I will be able to do so much more. What do you call them?”

“*Spéktru.*”

“Spéktru.”

“Selecting the right spéktru is something either men or women can do,” added Lua. “If I had been here this morning, Saréidukter would have been assisting me.” The day before Estoibaru had gone to Chris Mennea and to John Miller complaining that Saréidukter should not be allowed to build her own house. Miller had laughed; Chris had asked whether her building technique was bad. Then he had complained to Amos, who asked him whether he was prepared to marry her and adopt her two children, so that she could live according to tradition and custom. That had ended the argument.

“Well, I’m glad I saw you now,” he replied; a relatively polite response, considering the earlier conversations. “By the way, has Honored Mennea said when we will dig the irrigation ditch for our lands?”

“No. It has to be warmer. Unfortunately we can’t pay people to dig it; we don’t have the money. But we can give them an exchange: we will help plow their land with our rovers if they help dig the ditch.”

“But the rovers aren’t working.”

“They will be, tomorrow or the next day.”

“Excellent. And they’ll be going to Mɛddoakwés regularly? Because my nephew is there and plans to move here soon. I suppose I should go to town and find out what he plans to do, before his land is given to someone else.”

Thornton goes every Dwodiu in the morning and comes back here at sunset. You can go with him. He took a rover last week; it was working well enough.”

“Then I will go this Dwodiu. Thank you, my lady.” And Estoibaru walked away, happy.

Lua resumed her examinations and explanations. A few men came through the marketplace and also stopped to look through the microscope. She was pleased to see that they also were willing to let her examine their eyes and prescribe glasses; perhaps that was one of the ways to get her medical practice accepted.

When the sun fell lower in the sky and it began to get chilly, they went inside. Thornton was washing up from his day-long work on the older rover. Soon he reappeared with a calendar.

"Kwétɛru printed this today, while working on his dictionary," he said to his mother and grandmother, who were preparing supper. Mary took it and flipped through it. "It's beautiful! What will the Eryanɛ think of the photographs?"

"I don't know; I hope they'll be thrilled. This is the delux edition, for the wealthy; two dhanay each. Add a leather cover and they're three dhanay."

"Wow," said Mary, though she was only vaguely aware of how much that was. She flipped through the pages to the third month. There was a large photograph of the Réjé. "Why the queen on the third page, rather than the first?"

"That's Bolérɛnménu, the 'month of the greening'; it's the first month of the year. The first day is the first day of spring. The month before it is Ɛjnaménu, 'the month of sacrifice,' and the month before that—this month—is Plowménu, 'the month of rain.' I created a calendar that goes from now through the end of the next year."

She flipped to Ɛjnaménu, which had a picture of Moritua, half full of water with fallow fields around it. "And Ɛjnaménu is the month of atonement, right?"

"Yes, right before the new year. I think we should fast during that month. It is the equivalent time; the time before the spring equinox."

"I agree. And on this calendar, your birthday is coming up fast, right?"

"Yes; in fact it's tomorrow: the 14th of Plowménu. Well, that's one way to figure it. You have to decide what system of conversion to use. I assumed that the 20th of each Gregorian month was the first day of the corresponding Eryan month. That system makes February 3 the 14th of Plowménu."

"I see." She hadn't understood his explanation, but that didn't matter to her. "But this is very strange, for you. We arrived here when you were a Gregorian month short of your 18th birthday. Now thirteen Earth months have passed and you're going to have another birthday, but you turn 18!"

Thornton smiled. "Well, that's the way it is."

"I guess we should celebrate it, then!" said Mary.

She and Liz spent much of the next day baking; they wanted to make some new kinds of cakes they had never tried before, and they needed time to experiment. They explained the idea of birthdays to Lébé; it was a foreign notion to the Eryanɛ, living in a culture lacking calendars and birth certificates. They invited Awsé and John Miller to the birthday dinner that night, as well as Mitru, Diné, Mitruiluku, Kwétrɛru, Modolubu, Saréiduktɛr, and Dhugstɛru.

They translated "Happy Birthday to you" into Eryani and sang it; a song John hadn't heard for so long he had forgotten it. Then Liz brought out a cake of honey with some apples in it.

"Where did you get the apples?" asked Awsé, amazed.

"They're dried; we had a few left," replied Liz.

“I wish you had told me; I’d like to prescribe some to my patients suffering from mild scurvy,” said Lua, taking a slice.

“It’s excellent,” exclaimed Thornton, taking a bite.

“Speech, speech!” said Chris, looking at his son with a smile.

“What should I say?”

“Say it, and we’ll tell you whether it was right,” replied John.

“That’s what I’m afraid of.” Thornton chewed another bite and considered. “I’m happy to see our two families together tonight. We’ve had our differences over the last year, but we have also worked together and done some important things. I’m honored to be part of a bridge between the two, too. And I guess we’ll have a great year next year, too!”

“But how do you feel?”

“Me? Well, I’m not sure! It’s hard to say that today is my birthday, after all, and it’s hard to say how old I am. I used the calculator function on my computer this afternoon to figure that February 3, 1987—the day I was born on Earth—occurred 17.7 years ago here! So should I consider myself 18 today, instead of waiting a few more months? If I were still on earth I would be a student in university right now, but wouldn’t be married. I never expected my life would take the direction it has taken over the last year, but I am happy with it.”

“I guess that’s the real conclusion to reach over the last year,” said Liz. “We’re on Éra now, and it is good. We did not expect it, but it is a blessing we have been given.”

“Blessings often are unexpected,” said Mary. “My entire life has been filled with them, and I thank God.”

Miller nodded. “I guess I can say the same thing.”

Awsé patted her husband’s arm. “I’m glad to hear it.”

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A few days later, soon after sunrise, Chris drove the newly-repaired rover to Mɛddoakwés. Most of the way there he encountered Lord Mitrudatu of Morituora, riding a horse in the opposite direction. He slowed the rover and rolled down the window. “Hail, Lord Mitrudatu.”

“Hail, Honored Mennea. I was hoping to see you in Mɛlwika, so we could discuss water. Moritua is dropping rather than rising.”

“Lord Mitrudatu, there has been no flood since early winter because of the cold. In the last few days we have had warmer weather, but there is still no increase in the rivers. Of that you have my word.”

“Honored Mennea, there is a rumor that Mélwika is withholding water.” He said it gravely, as if he did not believe it.

“This is not true. The level of water in our reservoir has been constant for almost a month. In fact we have kept the level constant with great care because we have been harvesting ice from the reservoir. We did not want the water level to rise and flood the ice.”

“You’ve been harvesting ice?” Mitrudatu said it as if he did not understand the words.

“Yes, we have built a place to store the ice until summer. We will use the place to store vegetables and fruits, too; they last better when they are kept cold.”

Mitrudatu shook his head. “A new idea every month. Honored Mennea, when can I come to Mɛlwika to receive your hospitality, share some stories, and lay these rumors to rest?”

“We will be honored to receive you later today. I have a meeting with Commander Roktɛkɛstɛr now and will be driving back to Mɛlwika about an hour before sunset. I could stop at your house, bring you to Mɛlwika in the rover, show you the two reservoirs, give you an excellent supper, and then drive you back here a few hours after sunset.”

Mitrudatu smiled. “That sounds excellent. Are you speaking to Roktɛkɛstɛr about water?”

“We are talking about the Isérakwés today, and next week we’ll focus on the Dwobrébakwés. In a month or two we plan to start surveying the Gɛdhakwés and later this year the Penkakwés and maybe even Mɛgdontakwés.”

“That much! The Pɛnkakwés doesn’t even flow into the Arjakwés, and the northern Tutanɛ tribes may not appreciate your efforts.”

“Roktɛkɛstɛr is second cousin of the chief of the central Pɛnkakwés clan and has already spoken to him. The surveyors have protection and hospitality. There are several villages where the women farm while the men range with the animals part of the year. If they had water to pasture the animals, they wouldn’t have to chase the grass.”

“Until their population grows and they need more pasture.”

“Then we’ll get them more water.”

“How?”

“Éra has water; we just have to be able to get at it. There’s a huge amount in the ground; soon we’ll have the ability to pump it up.”

“What about the Tɛrsakwés? It floods every ten years or so, and when it does the Moritua is usually full, so the water is wasted and causes considerable damage. Have you thought of dams east of here?”

“Maybe Roktɛkɛstɛr has. There are no villages there, right? How would we would protect the dams from the Tutanɛ?”

“Roktɛkɛstɛr probably has cousins there, too, and there are the same sorts of villages there as in Pɛnkakwés. Most of the Tutanɛ have villages. The main difference between the northern and eastern Tutanɛ is power. The eastern tribes can field a formidable fighting force; the northern clans are few and right now the eastern tribes are mad at them. The real agenda behind all of this is power, Mennea; don’t forget that.”

“I know. The water has to be distributed fairly; or as fairly as it can be. That’s what I’m working on today.”

“So am I. I will see you later today.”

Chris rolled up the window on the rover and headed on to Mɛddoakwés. There he found Roktɛkɛstɛr and two other engineers and they drove up to Mɛgdhuna where the Isérakwés entered its gluba. The villagers—anxious to start on the dam—had already built a road up to the dam site. After stopping to pick up the village’s lord, Érwɛrgu, they were able to drive all the way up.

“Still no melt,” said Roktɛkɛstɛr, shaking his head. “I am surprised.”

“It will start in just a few days, though,” said Érwɛrgu. “Is this road good enough? Our wagons can get up here quite well.”

“It’s fine,” replied Roktɛkɛstɛr. “The rover can pull a pipe up here, right?”

“Yes,” said Chris. “We need to get it cast and rolled right away.”

“You mean it isn’t ready?”

“No, Miller hasn’t made it yet. But we can have it in three days. That’s the amount of time you need to prepare the streambed.”

“We can’t have it in two days?”

“No, I’m sure we can’t. I hope it won’t be four days.”

“In four days, this gluba will be full of water,” said Érwɛrgu. “We have several hundred men willing to work all day and all night to build the dam, too. We want to store the water.”

“I know, I know. We’ll get that pipe,” promised Chris. “We can get started by moving rocks and clay.”

“We have started; I’ll show you later,” said Érwɛrgu. “Your several visits were very inspiring and we remembered what the steps would be.”

“Excellent. Now we need to pray for the warm weather and rain to hold off,” said Roktɛkɛstɛr.

They drove back to the village to drop off the headman. Then Chris pulled out the cellular telephone and called home, with Roktɛkɛstɛr and his assistants present. He managed to get Miller on the phone, and when the Australian hesitated to make a commitment he put Roktɛkɛstɛr on as well. Miller promised to drop everything and get the pipe made tomorrow. Chris was smiling when he hung up the telephone.

“Your telephone works well,” said Roktɛkɛstɛr, laughing.

“It does. We need to talk about water distribution; I finally have a plan,” replied Chris.

“Following the discussions we have already had?” asked Roktɛkɛstɛr.

"Yes. Maybe we can discuss it right now; the rover is as warm and comfortable as a room in the palace."

"Warmer!" replied one of the general's aides, and they all laughed. Chris Mennea picked up his leather satchel and pulled out four copies of the five page report.

"Turn to the last page; that's the summary. The dam we've designed will hold 400 thousand thousand cubic doli of water, which is roughly one year's flow of the Isérakwés. We hope that will represent the river's minimum flow; most years there will be extra water. The plan calls for release of ten percent of the water as a flood in the late spring every year, for the fish, ducks, and other wildlife. That guarantees a flood; a small one, but something. The villages downstream are allocated water based on their population and the area they can irrigate. My numbers come from your tax records; Mɛgdhuna will get eight percent, the other five villages another thirty percent, Mɛddoakwés thirty percent, and the remaining twenty-two percent goes to the five villages downstream of the capital."

"And beyond that they normally don't get water anyway," added Roktɛkɛstɛr.

"They get a little flood water, but they pick up flow from the Dwobrébakwés. I have an allocation schedule for it, also; twenty percent of it goes into a spring flood, so that ten percent gets as far as the Arjakwés. The Arjakwés and Péskakwés dams will provide fifteen percent to a flood, twenty percent to the villages above Moritua, and sixty-five percent to Moritua; that fills it with twenty percent extra, which can be used by Morituora and Mɛddoakwés. Overall, my calculation is that the entire area and the 25,000 people who depend on the Arjakwés will have about fifty percent more water when the dams are completed on the Isérakwés and Dwobrébakwés, and when we raise the

Arjakwés dam this summer to its ultimate height. That means a lot more farmland, better quality food, more meat and fruit in the diet, and better health."

"And maybe thirty percent more taxes?"

"Yes, something like that, but it will take maybe ten years to see that entire increase."

Roktɛkɛstɛr nodded. He looked over the report. "The Réjé will be pleased. I'll submit it to her immediately."

39.

Tutanɛs

The Miller foundry rolled the pipes needed for the new dam the next day. After twenty-four hours of cooling, the pipe was on its way to Mɛgdhuna in seven-meter sections, each tied to a trailer and towed to the gluba. Both rovers had to make four trips, two one day and two the next, to get the entire length of pipe in place for the two penstocks. The pipes had to be maneuvered in place by teams of fifty men walking knee-deep in ice-cold flood water, for the spring melt finally began. But once the pipes were in place, teams of men hauled boulders against the current and set them in place, diverting the flow into the pipes and laying a solid base for the dam. Roktɛkɛstɛr and his engineers managed to convince several hundred men from Mɛddoakwés to walk to the gluba and they worked in two shifts from dawn until midnight thanks to the powerful light shed by Skanda. It was a struggle to stay ahead of the waters rising behind the dam; the two pipes were too small for the growing flood. On the sixth day, however, the dam reached a height where the floodwaters began to back up over a large meadow upstream of the gluba, and that slowed the rise behind the dam. Subsequently the workforce was cut back to three hundred men and the rovers returned to Mɛlwika because there were enough wagons for the job. In two weeks the Isérakwés gluba dam was completed to its full height and the penstocks closed most of the way to allow the water to accumulate.

The flood at Mɛlwika began one day later as warm air from the lowlands around the salt lakes spread eastward and northward, melting snow at lower elevations. The Péskakwés dam began to build up a substantial reservoir while only a trickle was allowed

to escape. The Arjakwés dam backed up a big, brown reservoir as well even though a substantial flood was let through to fill Moritua. Two weeks after the spring flood began, the water level in the gluba rose to the spillway and began to flow out. The Arjakwés reservoir was now full for the first time. Its lake extended almost three kilometers upstream of the dam.

The growing water supply and the tentative distribution agreement—which gave Mɛlwika enough water to irrigate a thousand agris—spurred a very rapid growth in Mɛlwika's population. Landless peasants walked from Mɛddoakwés and surrounding villages to settle on lots laid out by Amos and Behruz; they walked over to farmland assigned to them and began to clear it of brush. When the rovers returned from Mɛgdhuna there was celebration; it meant that Mɛlwika could get started on its public works as well. The next day Amos and Thornton, each driving rovers, plowed the route of an irrigation ditch from the Péskakwés dam to the Arjakwés, paralleling the Péskakwés riverbed but about six hundred meters south of it. Over 100 farmers turned out with their shovels to excavate the eight-kilometer ditch, which had to be 1.2 meters wide and deep initially. Chris made an agreement to plow two agris of land with the rover in return for their help with the ditch and city wall; a bargain for everyone, because plowing virgin land otherwise was very difficult.

Three days completed the ditch. Getting water into the ditch, however, was more difficult, because the mouth of the gluba was lower than the head of the ditch. Using PVC irrigation pipe the aliens had given them a year ago, Amos and a group of workers laid pipe from the dam to the beginning of the irrigation ditch. Pressure would force water

through it as long as the reservoir was at least half full; during the summer a pump would do the work instead. Everyone cheered when water began to course through the ditch.

The work that was needed far exceeded what could be done. Everyone wanted to start planting peas, carrots, onions, and other cold-weather crops; most peasants had very little food in the late winter and spring. The rovers were busy fifteen hours a day plowing the land that had been promised, which meant Thornton and the others who could drive had no time to give lessons; the génadɛma closed for a vacation. The foundry faced a severe labor shortage because so many wanted to plant; the Eryanɛ still did not trust paid work and saw a farm as security. At the same time orders for iron work were pouring in, so the Miller clan postponed planting its own land to keep the foundry going. The newly-arrived peasants were busy building their houses at all hours of the day and night; people excavated clay for bricks under the light of a full Skanda until almost midnight. The southern enclosure was half-filled in a month and adobe houses rose everywhere. There was a severe shortage of wheat straw; the hillsides were combed for dead grass and brush and many houses had to go without roofs for a time, even though it was the rainiest time of the year.

Lua took to walking Mɛlwika with her brother-in-law Amos every morning. He would invite new arrivals to come to his office to register for a house lot and a piece of land; she would look for health problems and introduce herself as the local healer. The effort was essential, also, for creating community, since no one knew each other and everyone was afraid of everyone else. “Do we have names for all these streets?” she asked him one morning as they were walking around.

"Not official ones," replied Amos. "There aren't *that* many streets anyway. I've taken to calling this major east-west street 'Icehouse Road' because the icehouse is so distinctive and unusual, and is about in the middle of the street once it's all built up. The other major street paralleling this one will be Péskakwés Street, but it isn't easily defined yet."

Houses only exist on one side," agreed Lua. "And the alleys?"

"Nameless; any ideas?"

"Hum. I have been amazed by the optimism I've heard. Everyone is saying they came here for a new start or for opportunities or to get rich. It reminds me of a western movie! So maybe we should express this spirit in the names of its streets."

"Like 'Optimism Street'?"

"Yes." They started up the narrow street—really more like an alley—which began near the Péskakwés dam and ran eastward for about a hundred meters. It had about a dozen small dwellings on each side of its five-meter width; many were built to their full one-story height along the street, but when one looked over a neighbor's partially built front wall one saw that the side walls were often only marked. In some cases two or three families were living around a single brick fireplace in the middle of an unenclosed space, with a reed lean-to in a corner for sleeping.

"I hope everyone encloses their houses soon," said Lua, shaking her head. "This is not good weather for camping."

"Most of the settlers are single men; young and strong. They'll be okay."

Lua laughed. "So macho! I have two young men in the clinic right now. One would have died if I hadn't given him antibiotics. The other one is just laying in bed and

enjoying the attention of my two nurses, not to mention the soup they feed him three times a day. But he'd be in bad shape without nursing care."

"Two, huh? That's not good."

They stepped over a pile of drying bricks covering the entire bottom of the alley, then around another pile of finished bricks. As they walked, people stopped their work to say hello. One man nodded to Lua. "No animal or human waste on the ground here," he said. "One-eye keeps telling us he's seen the germs!"

"Good!" replied Lua. Ever since she had shown Estoibaru germs through the microscope and had given him glasses for his one good eye, he had been a roving sanitation agent. A few had complained. "I'll have the microscope in the square by the tower again in a few days, if you want to look."

"Maybe I will."

They walked out the eastern end of the alley onto a short cross street. To the north was the embankment and the Mennea house on top. They turned right and walked back to Péskakwés Street; a dusty unimproved stretch of dirt with houses only along its northern side. The southern side was flat field for ten or fifteen meters to a six-meter drop off to the Péskakwés floodplain, which was covered with water backed up by the dam. A city wall still had to be built along the top of the drop off, so no houses had been built between the future wall and the road.

They walked up to another alley—Opportunity Street they called it—and visited several of the builders. A lot of people weren't there; either they were excavating clay, hauling stone, or working on their farms. Many new neighbors had agreed to work together on common walls, and on some streets builders had pooled their resources to

rent a wagon and heap it with rocks for their construction. Since the Menneas or Pɛrku often were called on to adjudicate disputes, the common projects often took a lot of time.

They reached the end of the alley and another cross street—Mountain Street, since it faced northward toward the mountain above the gluba—and that took them to the end of Mɛlwika's built-up area. There was room for a third section of houses between Péskakwés and Icehouse Streets, but none had been built, though Amos had put down red stakes to mark the lots.

"How many lots are occupied now?" asked Lua.

"I think yesterday I had given out through number 171, but that includes 60 in the western enclosure. The average lot has maybe 1.5 inhabitants, and the Miller and Mennea households have a total of 100, so our town now has about 350 people."

"Once the young men get married and have children, we'll have closer to a thousand; and we have more lots to build. Mɛlwika is going to be a big place in a few years."

"No question. If we can pave the road to Mɛddoakwés and provide it with public transportation, there will be a development axis involving 15,000 people." Amos pointed to a young man who had occupied a lot on the south side of Péskakwés Street, a bit to the east of them. "Ah, we do have a new arrival after all. But he can't build there; not yet." Amos started down the dirt road toward the young man, Lua following closely behind. The man had put together a fireplace of stones and had burned a few sticks. A blanket was still stretched out on the ground and another one was crumbled on top. Two blankets; the young man was relatively prosperous. His hair was more vividly red than most Eryanɛ, and even his skin had a ruddiness to it.

“Hail. I am Amosu Keino. Welcome to Mɛlwika.”

“Hail, Honored Amosu.” The young man looked at Amos carefully; he was startled by his black skin and tightly curled hair. “I am Rudhu.” “Red”: an appropriate name. “Several people have said that I can’t have this lot and I have to speak to a black man about whatever lot I can have. I take it you are that black man?”

“I am. Everyone is right; these lots are not yet for occupation because we have to build a stone wall along the back. But you can have a lot over there.” Amos pointed to the other street where it ran along the base of the mountain.

Rudhu shrugged. “I like this lot. On the other hand, that one will have building stone.”

“Do you want a farm lot too?”

“How much?”

“Half the harvest, and in twenty harvests the land is yours.”

Rudhu frowned. “Half, on top of the one third taxes? That’s impossible.”

“No, half the harvest includes the taxes for the Réjé. Of the rest, half is tax to my family and half is to buy the land from us so it is yours forever. Twenty harvests is usually understood to imply two harvests a year, though, because the land is irrigated.”

“That’s a lot of work, especially since I want to open a store here in town. Maybe a beer shop.”

“We already have two places that sell beer, so we’re not allowing any more, for now.”

“Allowing?” Rudhu was surprised.

"Allowing. Lord Miller retains the right to decide what will be built in his town. But there are many other shops we need. Do you have a trade?"

Rudhu shook his head. "Nothing useful here, I think. I worked as an apprentice to a glass blower for five years, when I was a youth, but I've forgotten a lot of it. I could be a carpenter or a brick maker, I suppose."

"Glassmaker is a real possibility. We need glass."

"This place is too small to employ a glass shop. Besides, there's no sand around, or lime either."

"There is a need for glass. The génadɛma needs lots of glass. Can you make flat pieces of glass? We need squares of glass about this big for our windows." Amos drew a square in the air. "And there is sand around. With the rover we can haul some to a shop, in return for buying the glass later."

"Why are you helping me?"

Amos was surprised by the question. "I don't know. It is true that Mɛlwika is a place of opportunity; perhaps you've heard? It's a place of opportunity because the Menneas and Millers are trying to build a new world, and they need help, so they are willing to help others."

"But you aren't talking about helping; you're talking about giving away. That's what I don't understand."

"But we *aren't* giving away; that's what you don't understand. You are a strong man with strong muscles. With a shovel, in a day you can dig a ditch perhaps 100 doli long. But if I teach you how to drive one of the rovers—which takes only a few weeks—in one day you can dig a ditch a dɛkɛnt long. The rover is just a machine, but it

magnifies any man's work. The man in town with one eye and one arm could dig the same ditch as you could with the rover! If we can give you machines, you can do far more, and we need a smaller percentage."

"But there are no glass making machines!"

"How do you know?"

Rudhu was surprised by that. "If you have glass making machines, why do you need me?"

"You are a smart man. We don't have glass making machinery. But we need glass, so we need a glass maker. If you are the glassmaker, we'll work with you, and maybe you can invent the glass making machines."

"I'm not a creator."

"Maybe you are."

Lua watched the pseudo-argument. "Honored Rudhu, your accent is not quite the local accent. Where are you from?"

"I have lived in many places, including Mɛddoakwés, Ora, Bɛllɛdha, Anartu . . . I've even lived at Kostɛkhéma, the village next to the Spine. That's why I have two blankets; I travel a lot."

"Your trade is traveling. What is your native village?" asked Amos.

"Naskɛrpɛda; it's down by Akanakvéi."

Amos thought about that for a moment. It made sense; the villages in the lower Arjakwés were known for their glassware, and their accents were slightly more "eastern" than Mɛddoakwés. He had heard of "Rhinoceros Leg" as well. If the information was not true, they would find out soon enough; Pɛrku would know. "Rudhu, you are welcome

here," said Amos. "Let's find you a lot, and then I'll introduce you to my father in law, who wants the glass."

"Excellent," replied Rudhu. He turned to pick up his possessions, then the three of them walked toward the lots along the base of the mountain. They selected a lot that was not quite flat; it had a bit of slope to it.

"People here almost always build two-story buildings," said Amos. "So you will get twice as much space."

"One level for my work, one for my family," replied Rudhu.

"Tutanɛ!" shouted someone. They looked up from the lot to see a man running toward the town from the east. "Tutanɛ!" He shouted again. "They're coming!"

"We'd better head for the fort!" said Rudhu, picking up his possessions again.

"Hey!" Amos shouted to the man. "Where are the Tutanɛ! How many of them?"

The man recognized Amos and ran over. "I was working on my pea patch when I saw three or four of them on horses. I don't know whether they saw me or not. I guess they must have! Anyway, I ran, and they trotted along until they reached the gardens, when they stopped!"

Amos thought for a moment. "Go tell Pɛrku immediately. Lua, tell the Miller and Mennea households and call the rovers. They should warn the farmers. I'm heading for the foundry to warn them. Do you know where the binoculars are?"

"I think they're in Thornton's apartment; I'll get them, too."

"What about me?" asked Rudhu.

“Come with me,” replied Amos. “I may need your help.” He headed up the embankment behind Rudhu’s lot; it took them into the rear of the foundry. “You watch,” said Amos, pointing east. Amos hurried inside to find eagle-eyed Manu.

Manu was not there, but Yimu was. He told Yimu, who looked at the iron forge and the blazing flames and decided he couldn’t evacuate everyone without ruining some of the equipment, so he sent two men up the mountain to keep watch. Amos went back out to find Rudhu.

“There they are.” Rudhu pointed. Four men on horses could be seen on a hill a hundred meters east of town, looking at it. They weren’t moving; just looking.

“Let’s get inside,” said Amos. They headed for the door of the Mennea household. The gate opening into the western enclosure was already crowded by dozens who were fleeing inside. The houses built inside the future southern enclosure were not safe; only one of the four city walls had been built.

“Tutanɛ, huh?” said Liz, when she saw Amos. “Chris and Thornton are out with the rovers; we’re calling them.”

“There are four or five Tutanɛ visible on a hill east of here,” replied Amos.

Rudhu looked around the house from the central courtyard; he was impressed by its size and solidity.

“I found the binoculars!” said Lua. She waved them from a second-story window.

“Okay, let’s go up to the roof!” Amos turned to Rudhu. “Do you know where the fort is?”

“Yes, of course.”

“The Commander is named Pɛrku. Tell him to come to our roof. We’ll be able to see better than from the fort.”

“I’ll tell him.”

“You can leave your things here in the courtyard.”

Rudhu headed for the house’s western door, which was open. Amos headed up the stairs to the roof right behind Lua. Miller was already up on his roof, looking. They walked to the part of their roof that adjoined his roof and looked through the binoculars. Liz came up with the cellular telephone to tell Chris what they saw. Thornton was listening in his car’s two-way radio.

Pɛrku and Rudhu bounded up the stairs and joined the crowd on the roof. Clearly, Rudhu was not to be left out of the crisis. “Here comes Chris,” said Liz, pointing to a rover coming westward along the other side of the Péskakwés. “I’ll go let him in.” She hurried down the stairs to open the gate.

Pɛrku looked through the binoculars. He passed them on to Rudhu, who looked as well, amazed. “We need to watch from on top of the mountain,” the sergeant added.

“We can send someone to the peak with the binoculars and a phone,” suggested Amos.

“My second in command would do an excellent job,” said Pɛrku. “He took your surveying class, remember? He can estimate distances well.”

“Good,” replied Amos.

“Can you get him and bring him here? His name is Aisu.”

“I will.” Rudhu ran down the stairs.

He passed Chris coming up. Chris looked at the four horsemen through binoculars, too. “I saw two myself,” he added. “I was plowing when a man ran up to me saying he’d seen Tutanɛ. I let the man climb in, I raised the plow blade, and drove east a few hundred doli until I saw them. I stopped and stared at them from a safe distance and they stared at me, too. That’s when I got your call. So I turned around and drove back here, picking up farmers as I went. Thornton’s doing the same.”

“He should be safe; they don’t know what a rover is,” said Pɛrku. “There must be more than six of them.”

“Last year there were twenty or twenty-five, right Mennea?” asked Miller.

“Something like that. But they didn’t stay, after they swiped a chicken or two.”

“Twenty or twenty-five can do a lot of damage,” said Pɛrku. “At least we’re safe inside the fort.”

“Four years ago there were thirty or forty of them, with two hundred head of cattle,” said Miller. “They camped up at the mouth of the Péskakwés gluba for three or four weeks. They wanted to trade with us. We stayed inside the house the entire time and came out only for water in the middle of the night.”

“Now we’ve got a lot more people depending on us,” said Chris. “We’ve left the meadow at the mouth of the gluba for them because John said they often came there. I think we had better negotiate.”

“How?” asked Miller, puzzled.

“By rover. Pɛrku, you, and I can drive up and talk to the chief.”

“We need to know how many there are, first,” said Pɛrku. “Let’s go up to the mountain peak above town. From there we can probably see all the way to the gluba.”

Pɛrku turned to descend the stairs just as Aisu and Rudhu came up. The entire party descended the stairs.

The men climbed the mountain to the top. It was almost a hundred meters high and a good trail led to the top via the side of the gluba. They took a telephone; Liz stood on the roof with another one to report to them anything they couldn't see from their perspective. About the time they reached the peak, Thornton arrived in town with the other rover. It was packed with farmers, and more jogged alongside it. The gates were closed.

From the peak there was indeed a good view of most of the meadow at the mouth of the Péskakwés Gluba. A large herd of horses and cattle grazed in the bowl; tents festooned the flat top of a hill nearby. Pɛrku counted horses, gave up, and started counting tents. He whistled. "There are a *lot* of them! There may be fifty men!"

"Just what we need," said Miller.

Chris Mennea took the binoculars and looked. "Our new irrigation canal goes right through their camp."

"They must find the water convenient," said Pɛrku. "This is a bad situation. I have twenty men."

"We should be safe in the enclosure," exclaimed Chris. "Mɛlwika has a lot of men; maybe two hundred. They all have tools they can fight with."

"We need bows and arrows," said Amos. "If all our men could shoot arrows accurately, they could stand behind the wall and shoot. Fifty horsemen would not want to attack us."

“But they have bows, too,” said Pɛrku. He looked down on Mɛlwika. “A really strong bow can rain arrows down into town from up here. We need to secure this height. But I can’t move all my men up here, and half won’t be enough.”

“I wish we had built the wall for the southern enclosure,” said Amos. He pointed. “It was supposed to run up the hillside to this peak, then down the other side to the gluba. This peak would be inside. So would the iron foundry, which is outside right now.”

“But that’s a long, expensive wall,” said Miller. That was the problem; Miller had not been willing to pay for workers to build it.

“Well, we need it now,” said Pɛrku. “How long is it?”

“I think 1,100 doli,” replied Amos.

Pɛrku considered. “We have enough people in Mɛlwika to build something crude very fast. If we worked all night and all day we could throw up a crude wall maybe three or four doli high; enough to prevent horsemen from riding right into town, at least. It would also define a boundary.”

“It would make everyone feel much better, too. Right now they’re all huddling in the fort.”

“We better get started on that right away,” said Pɛrku. “And I’ll send a man to town to ask for reinforcements; Lord Miller, can you spare a horse?”

“Yes,” replied John.

“And now that we have both rovers, let’s negotiate,” said Pɛrku. “The three of us can drive out and should be pretty safe.”

“Oh, we’ll be safe,” said Miller. He waved his gun, a piece of metal that meant nothing to Pɛrku.

“I think we should start by calming the crowd,” suggested Pɛrku.

“Good plan,” said Miller.

Chris showed Aisu how to use the cellular telephone and wrote the number to call on a slip of paper. Fortunately he could read numbers quite well. Then they started down the mountain.

“So, who does the negotiating with the Tutanɛ; the Lord of Mɛlwika?” asked Miller, as they descended.

“No, the representative of the Réjé’s army,” replied Pɛrku, matter-of-factly. Miller said nothing more, much of Chris’s silent relief.

The three of them walked straight to the public square in front of the tower. Pɛrku raised his sword. “Citizens, give me your ears! The Lord of Mɛlwika, Honored Mennea, and I are going to meet the Tutanɛ chief. We are going in a rover so we should be safe. Aisu is on top of the mountain using binoculars”—he didn’t bother to translate or explain the word—“watching the Tutanɛ, and he will tell us if they move. Right now, there is no danger.”

“But how will we farm our land?” asked someone.

“We’ll see about that,” replied Pɛrku. “Right now, I suggest everyone find a place in the génadɛma where they are comfortable and have something to eat. This enclosure is safe; there are enough of us to repulse an attack. If you have tools and personal goods in the southern enclosure, go get them; for now, the gate will remain open.”

Pɛrku turned and walked back to the Mennea compound, followed by Miller and Mennea. Thornton had already driven both rovers out of their garages. Chris called Aisu

to make sure he knew how to answer the telephone and make sure there was no movement of Tutanɛs.

Pɛrku and John got into the rover with him and they started out, with Thornton following in the other rover a hundred meters behind. They crossed the creek on the rebuilt dam and bridge, went up the bank on the other side, then headed up the dirt track to the gluba. The road was unimproved and there were, in most places, plenty of alternate routes, should someone suddenly appear and threaten them. They passed one or two farmers walking home with huge bundles of brush and straw; Thornton slowed to warn them of the Tutanɛ.

They drove until the road reached the edge of the eight-hundred-meter circular bowl into which the gluba emptied. From there they had a good view of the camp and the herds of animals grazing on the bowl's greenery. Thornton stopped and turned the rover half around so he could easily drive either way; Chris continued forward.

The entire Tutanɛ camp emptied out and came to look at the rovers from the edge of the tents. The men were on horseback so they could ride; the women and children were on foot. Chris stopped about sixty meters from the first tents and waited for someone to appear. He and Thornton had the two-way radios on and tuned to listen to the telephone chatter between Liz and Aisu. Aisu reported that he could see no horsemen riding around behind them.

They waited several minutes. Finally Pɛrku opened the passenger-side door and got out.

"Hail, brethren!" he shouted. He used *bratɛri,* the old Eryani vocative plural form of the noun that no one used on the western shore, but was still used by the Tutanɛ, whose

Eryani was traditional. It was obvious to the people in camp he was the man in charge; he wore an army uniform of leather with bands of iron sown on his tunic and breeches.

“Hail, brother!” replied a man from the camp. He spurred his horse forward. He was bare-chested and his face was painted blue; he wore eagle feathers in his hair.

“I am Pɛrku, a commander in Her Majesty's army, in charge of the royal garrison at Mɛlwika. What is your business here?”

“I am Andrulɛru, chief and distinguished elder of the Dwobɛrgonɛs. This is one of our traditional winter camping grounds. We have come to assert our ancestral claim to it. None can farm here; this land is ours.”

Pɛrku had been briefed about the issue of grazing rights already. “Honored Andrulɛru, Mɛlwika respects your right to graze animals in the bowl and to the east of the bowl; that is why they have not farmed in those areas. But Mɛlwika land begins at the bowl’s western end, and this is by the command of the queen’s own representative.” He was referring to himself, though he did not say so. It did not matter which representative of the queen had commanded it; if he recognized Mɛlwika’s claim, then the army did, because any attack on the garrison would result in an army response.

Andrulɛru was not to be intimidated, however. “My tribe’s ancestral claim extends to the bowl at the mouth of the Arjakwés Gluba, and has extended that far since time immemorial. No queen’s representative can give away that which belongs to another people.”

Pɛrku stood free from the rover and spoke in a calm, steady voice. “Honored Andulɛru, that was the decision of the queen’s representative and it stands. Last summer the Réjé herself commanded that Mɛlwika be a royal city. She invested John Miller as

Lord of the city and established a royal garrison there. Mɛlwika is no longer an outpost or hamlet; it is a city, and it has its own land. That land starts at the western edge of the bowl at the mouth of the Péskakwés gluba and extends to the Tersakwés south of here. It also extends north of the bowl to the Arjakwés on the other side of the mountain. That is Mɛlwika." He stared at Andrulɛru. He had drawn a line in the ground.

Andrulɛru stared back. "Then our camp is outside the land of Mɛlwika," he replied. He turned and rode back into his camp. Pɛrku watched him go. Finally Pɛrku turned and stepped back into the rover.

"The negotiating is over," he said. "But Andrulɛru implied that he accepted the new boundary."

"Damn savages!" uttered Miller.

"The boundary you've drawn keeps them off all the farmland, but the Péskakwés Dam is outside it, as is the pipe we've laid to get water to the irrigation canal."

"There's nothing we can do about that. Their camp would be inside the boundary if I had made the eastern edge of the bowl the boundary of Mɛlwika. My twenty soldiers cannot make them move, and General Aryornu would have my head if I tried to move them and started a battle."

"But they still might attack us!" said Miller.

"Yes, they might; but then General Aryornu will have Andulɛru's head instead. We must start building a new wall immediately that will include the peak; otherwise Mɛlwika is not defensible and the iron works and dam are in danger. I can get the people to do the work, but the two of you must throw your money into the project."

"How?" asked Miller.

"As long as everyone's working, feed them extremely well, and give them a bonus of some sort afterward. You've got the supplies. I know."

Miller nodded. "I agree."

"So do I," said Chris.

"I doubt they'll give us trouble, but you never know," said Pɛrku. "The biggest danger is probably tonight, and after they see the wall. Right now Andrulɛru will be going back to his camp and arguing with the others what to do, and the hotheads will be demanding instant action. After we finish the wall, if they're still camped here I'll send a garrison of soldiers to guard the western end of the bowl, with a rover and telephone. Then we'll let the farmers go back to work."

"There may not be water in the irrigation canal," said Chris. "But we can solve that problem."

"The water agreement that you have drawn up; has it been approved by the Réjé?"

"Not yet," replied Chris.

"When it is, it will imply that the Péskakwés Dam is part of Mɛlwika, and the army will back it up I'm sure," said Pɛrku. "I'll also ask Aisu to move closer to their camp and observe. Can he take the phone?"

"Yes, of course. It has one limitation though: the telephone has a 'battery' in it, and we have to charge the battery every few days. But it will work until tomorrow."

"They may decide to watch us, too," said Miller. "I'd suggest Aisu not go to the mountain overlooking their camp. They might send someone up there looking for us. But if he stops at the peak before that peak he'll be close enough for the binoculars, and they don't know about binoculars."

“I agree; we’ll call Aisu. Do you think we could get Nénaslua to send workers tonight? They’re six dɛkɛnt from Mɛlwika and will benefit from our fortifications.”

“Send a messenger to Wɛranolubu,” said Chris. “He can’t refuse the garrison commander. They could send at least 100, especially if we promised to pay.”

“You’re going to bankrupt me,” grumbled Miller.

“You won’t be bankrupt for long if we protect your iron works,” replied Pɛrku.

40.

The Wall

The two rovers drove back to Mɛlwika. Pɛrku consulted with Amos quickly before rallying everyone about building the wall. It turned out that there were rules about walls around settlements. The walls could not be more than two doli thick and eight high; they could not be thick enough for someone to stand on them, though they could be high enough for people to be protected behind them if they were standing on the roof of a house built against them. In short, the walls had to be defensive against horsemen and ruffians, but not against Her Majesty's army. The exceptions were granted by the Réjé herself.

The eastern enclosure's walls were actually a bit lower than the standard, and about half as thick. Pɛrku wanted the new wall built to the standard. He also wanted a small tower built every hundred doli; that would give defenders a place to stand and fire at attackers. The wall to be built was 1,100 doli—550 meters—long and Pɛrku wanted all of it started right away. By dawn he wanted it as high as possible.

The entire adult population of Mɛlwika headed up the mountain to start on the wall where it was least visible to the Tutanɛ; from the peak northward to the gluba, and from the bottom of the gluba westward to Miller's household. When workers arrived from Nénaslua two hours later—midafternoon—they started a second project, to move wagonload after wagonload of rocks from the mountain to make hidden piles in the village. Amos supervised that effort, removing rocks to rough out future roads on the mountain and allow wagons and rovers to move farther up.

As the sun set, the workers shifted to the southern side of the mountain facing the Péskakwés. The gathering darkness covered their work from the eyes of the Tutanɛs. Pɛrku walked back and forth along the wall, helping resolve problems that arose from building a wall on a thirty degree slope, supervising the removal of rocks outside the wall to ensure a clear shot.

Mɛlwika did not have many older people and pregnant women unable to work, but Liz, Mary, and Awsé organized all eight of them. Dozens of bowls were filled with soup, taken to the workers, washed, refilled, and taken back to the wall. The children were occupied with the tasks as well.

Skanda waxed to full, then gradually waned. Aisu returned after watching the tutanɛ camp go to sleep for the night and then walked up the dirt track to the western edge of the bowl, so he could stand on Mɛlwika land and watch the camp. When he returned to town an hour before sunrise, the town had a wall a bit more than a meter high.

“We can’t stop now,” said Pɛrku as the sun rose. “By noon we can have three doli, four where we need it. Four doli will stop a horseman. Keep going, keep going!”

Behruz was working nearby and turned to Thornton. “God bless Pɛrku; we couldn’t do this without his help. How are you holding up?”

“I need more soup,” replied Thornton.

“We’ll have some soon,” Behruz replied. He pointed. “Your dad looks tired, too.” Chris was driving a rover nearby, pulling a trailer loaded with stones.

“Yeh, he does,” agreed Thornton. “Pɛrku has planned this pretty well. Even if the wall isn’t very high, it’s been built on the top of a slope in most places, so it has added height.”

"And the few spots where it's built across a flat area, it's built higher," added Behruz. "We're really lucky. I've met a lot of dumb army officers."

"Pɛrku has grown in his job since he arrived," said Thornton. "He's learned to read and write, has learned math, and they've opened up a new world of thought for him. I think we're benefiting from that, too."

"You're right."

They went back to lifting rocks up the wall, where a stonemason carefully put them in place and made a request for the next rock; large, medium, or small, round, flat, egg-shaped, or whatever. In a few hours one got a sense of what he wanted, and if what one supplied wasn't quite right he put it aside and asked for something else, and eventually found a spot for everything. A track wide enough for the rover to pull a trailer had been cleared along the entire length of the wall, though it often veered away from the wall to go around a bedrock outcrop. The rovers were constantly busy pulling a trailer loaded with buckets of wet clay, where men unloaded some of the buckets and dumped empty buckets back onto the trailer, then it went down to the next stop and the process was repeated, seven times until it reached the bottom of the slope and it had no full buckets left. At three spots on the descent, lines of men passed rocks from hand to hand to the wall; sometimes the trailer was used to carry some to a spot where rocks were scarce. At the last stop the trailer was loaded full with rocks and the rover pulled the load to a spot where it was needed, then it went back to the clay works to get a fresh load of buckets. Teams of horses were also busy hauling trailers of rocks to places where the stonemasons could use them. Fifteen hours of nearly continuous work had allowed them to become quite efficient, in spite of their near-exhaustion.

Pɛrku's prediction was right; by noon a wall three doli, or 1.5 meters, ringed the town. Where it crossed flat land it was 4 doli or 2 meters high. By moving the wall to the east slightly and curving it he had used a ravine to give it more height, and by incorporating several large rock outcrops into it there were several natural places where defenders could stand and shoot along the wall. Pɛrku sent everyone home to sleep. Even though his hand was shaking from exhaustion, Pɛrku walked along its entire length with Miller, very pleased.

"Lord Miller, on this day I give you a real city," he said when they returned to the fort.

"Thank you; you have transformed this place. It's hard to believe that less than a year ago it consisted of a single house."

"Today it is something new. The power of the crisis has done it."

"But the wall is not finished."

"No. We'll build it tomorrow and the two days after that, but only eight hours a day. This was too much to ask. We completed three day's work and built half the wall. Now everyone must rest."

"Three more days, huh? You will bankrupt Mennea and me."

"You'll make it back and more," replied Pɛrku.

"Have you heard from Mɛddoakwés?"

"I sent a messenger yesterday. He returned today with two messengers from Aryornu, who looked over our work and took my latest report. I hope he'll send reinforcements."

“So do I. Meanwhile, Mɛddoakwés won’t get any coal today, and I’m sure the Thornton and his student friends won’t be driving to town tomorrow. People will notice that, too.”

“Good,” said Pɛrku, with a smile.

Miller left for his house and Pɛrku walked into the fort. He climbed to the top and looked east with the binoculars, which were on permanent loan to the fort. He could see five or six horsemen on a hill a dɛkɛnt away, looking at the transformed town. The Tutanɛ knew.

He handed the binoculars to the guard on duty. “Watch them,” he said. Then he laid down on the floor and instantly fell asleep.

In the Mennea household, no one stirred, with one exception, until after sunset. Chris rose first and headed out to see what was happening. When he returned he found quite a few people gathered around the table.

“What’s the news?” Liz asked.

“We weren’t attacked, and there are no reinforcements,” Chris replied. “We have the wall half built; Pɛrku wants to finish it over three days.”

“Thank God he doesn’t want to do it faster!” said Lua. “I’ve had a dozen people stop by the clinic with sprains or cuts, some serious. I’ve given out more aspirin than since our arrival! We need to take our time.”

“If we take too much time, though, we’ll be bankrupt,” replied Chris. “The Millers and Menneas are feeding everyone who’s working and we have to give an unspecified bonus as well. Pɛrku calls the shots right now.”

“He seems very competent,” said Behruz.

"Yes; I am pleased and relieved," agreed Chris. "I wish he were a bit less generous, though. And I wish he could get us some reinforcements."

"If the Tutanɛ attack, how will we know?" asked Amos.

Chris shrugged. "Someone will run around shouting, I suppose."

"Because it occurs to me we need some kind of warning, and we need something that will warn people outside town as much as in it. A bell."

"A bell!" Chris smiled. "Great idea! I'm sure the foundry can make one. We could ring it in case of fire as well. I'll suggest it to Miller."

"I wonder whether we can form a militia, too," said Behruz. "They would have to train a few days a year and would get some pay."

"Do you mean a sort of private army?" asked Kwétɛru, puzzled by the word.

"A 'part-time army,'" replied Chris.

Kwétɛru shook his head. "Villages and towns are not allowed. Only the army can do army work. But I have a different idea. Why can't we build better weapons? We could make guns like the ones you already have or simpler. We could make grenades"—he paused to use the English word—"and cannons. If you don't want to build such weapons, there are always catapults and trebuchets."

Chris stared at Kwétɛru, shocked. "How do you know about these things?"

"I cruise the web. Mitruiluku now knows enough to do it, too."

"Interesting." Chris was clearly upset. He didn't say anything for a minute; Kwétɛru began to grow uneasy. "Kwétɛru, the people on earth have nearly destroyed themselves because of the weapons they have made. There are weapons on earth that, if used here, could literally kill every living thing on Éra. Fortunately, we don't know how

to make such weapons. But even weapons that are much weaker could have grave consequences here. Consider if we made guns for the army. The army could go out and kill Tutanɛs at will. Some will survive and want to avenge the deaths of their families, and they will get guns too, because no important innovation remains a secret."

"One of the problems every society has is how to balance power between the center and the villages and tribes," added May. "If we make the queen's army extremely powerful, we make everyone else weak, and that upsets the balance of power. We're trying to maintain a balance of some sort, or at least not upset the balance too fast."

"What you're trying to do is impossible," replied Kwétɛru forcefully. "First of all, there are serious problems in this society that can't be changed without upsetting the balances. How will Sumis be treated fairly? How will peasants be seen as human beings? How will women be given the right to read and write? The changes needed are huge! And they are needed to make this world ready for contact with Gɛdhéma anyway!"

None of the Menneas were sure what to say in response. "Can women not learn to read here in Mɛlwika?" replied Liz. "Are peasants not treated as humans? Are Sumis not equal?"

Kwétɛru was not to be calmed so quickly. "They may have equality in the génadɛma, but not in Mɛlwika, and you're not going to change that by praying."

"Don't underestimate the power of Esto," said Lébé.

"Don't overestimate his power either," retorted Kwétɛru.

"He does have an important idea," said Behruz. "We can make some weapons that need not be used, unless we are attacked. Like molotov cocktails."

“Bottles and gasoline,” said Chris. “Without bottles and gasoline are you thinking about pots and alcohol?”

“Yes. I could probably add some olive oil or something to make the wick burn better.”

“I don’t understand,” said Kwétɛru.

“The alcohol the rovers burn is highly flammable,” replied Chris. “You can fill a pot with it, plug the opening with a rag soaked with alcohol and olive oil, light the rag and throw the pot. When the pot breaks it spreads fire.”

“That would scare horses terribly!” exclaimed Kwétɛru.

“How many can we make?” asked Chris.

“In spite of all the plowing and the wall work, we’ve got lots of alcohol. The problem will be the pots. I can probably make a dozen around the house.”

“Do it,” said Chris. “I’ll talk to Pɛrku so that you don’t have to work on the wall in the next few days. But concentrate on weapons that we won’t regret making later.”

“I don’t know what weapons those are,” replied Behruz.

“Neither do I,” said Chris.

That night Pɛrku organized the few who had the energy to work—thirty or so—and they hauled rocks for use the next day. In spite of his exhaustion, he was up at dawn to start a full day of work; he now wanted a full day’s work and two days to complete the wall. Even Béranagras sent fifty men—who expected to be paid—and that speeded up the work.

Chris walked around to find Pɛrku, and when he did he demonstrated the molotov cocktail by throwing it into a dry corner of the gluba. The crowd that watched was fascinated and Pɛrku was pleased. Then Chris drove rocks to the wall being built along the Péskakwés. He was surprised to see a raging torrent flowing down the creek. The Tutanɛs had figured out how to open the Péskakwés penstocks. He ran to tell Pɛrku.

"There's nothing we can do," he replied. "But there's a good omen to this. Andrulɛru is a smart strategist and wouldn't do this if he wanted to attack us. The raging creek will be hard to cross. If he wants to attack us on this side he'd have to attack between the creek and the mountain, where we could rain arrows down on him and the creek would cut off one escape."

"You're right. And to attack on the west, he'd have to cross either the Arjakwés in the mountains and sweep in from the north, or cross the swollen creek to the south."

"How long will the reservoir take to drain?"

"I don't know. Probably a week or so; it has a lot of water, and there's a lot of melting going on."

"They can't destroy the dam, I think; it's too big. So don't worry."

Chris went back to work, feeling little comfort.

They quit an hour before sunset, extremely tired but finished with the work Pɛrku had scheduled. The city now had a wall 4 doli—2 meters—high everywhere, and 5.5 doli (almost 3 meters) in two short stretches where the wall crossed flat ground. In both areas, however, Pɛrku had directed the people digging clay to do their work just outside the town, so the wall was fronted by an irregular, shallow ditch.

They started the next morning after dawn, and by now the people of Mɛlwika knew the routine well. The wall rose with considerable speed and everyone felt optimistic about their work. The Tutanɛs would never attack them now; and the wall enclosed enough space for the city to double in size, meaning it would be too large to attack next year.

About noon a cheer arose on the western side of the town. Amos and Thornton were working on the Péskakwés wall and couldn't see anything. Then people working on the mountain walls began to cheer as well. Chris drove down the mountain in the rover with his window down. "The army is coming!" he exclaimed.

Amos and Thornton looked at each other, then cheered like everyone else.

Work on the wall stopped and everyone headed to the western enclosure, then out its gate to look down the Mɛddoakwés road. Several hundred foot soldiers marched in a triple column with a hundred horsemen in the lead. General Aryornu was in front.

Everyone cheered their lungs off. Mɛlwika had felt like a town under siege; now the siege was over.

Aryornu led the troops right up to the gate, where he called a halt. By then Pɛrku, Miller, and Mennea had reached the gate to greet him.

"General Aryornu, sir, welcome to Mɛlwika," exclaimed Pɛrku.

"Thank you Commander." The General turned to the other two men. "Hail to Lord Miller and Honored Mennea. I'm glad to see Andrulɛru and his warriors have not attacked."

"No, they have not," said Pɛrku. "If the General will inspect, I can show him the fortifications we have built around the town to protect it against future visits by the

Tutanɛ. We are keeping the tribe under constant surveillance. They have opened the Péskakwés dam to drain the reservoir, but they have not disturbed any of the farms."

"I read your detailed reports, Commander, and was very impressed by them. I do want to tour the fortifications you have started, but I am more concerned by their release of water from the dam. By command of the Réjé herself, that water does not belong to them. It belongs to the villages downstream according to the formula worked out by the Queen's Water Council, which included Honored Mennea among its ranks. The Queen has accepted that formula for use this coming farming season. She is also concerned that Mɛlwika has been unable to make its regular contributions to the markets at Mɛddoakwés. I have been commanded to secure Mɛlwika and its dams and to encourage the Tutanɛ to move on to other pastures."

"Marvelous!" exclaimed Miller.

"Their camp is about thirteen dɛkɛnt upstream," said Chris.

"I know, Commander Pɛrku has sent me a map." The General reached into his pocket and pulled out a piece of paper. He unfolded it. It showed the entire area in detail and to scale.

Chris looked at it. "It is a good map."

"I assume men in armor cannot easily swim the Péskakwés right now? In which case, the town bridge is our best route across?"

"Correct," said Pɛrku. "The bridge is securely in our hands. The river will also protect your flank."

"Excellent. Then I'll send the foot soldiers up the road along the river while the cavalry protects their southern flank. That will squeeze Andrulɛru and his people against

the river and the mountain to the north, or to the east; their preferred escape route. Are you sure of their strength?"

"We've counted twice. They have about 100 warriors."

"We have that many horsemen alone; and my cavalry are Tutanɛ as well. The best. Commander, you can secure the town without reinforcements?"

"Yes, General."

"Fine. Then we will march through town, across the bridge, and toward their camp."

Pɛrku, Miller, and Mennea stepped aside, and General Aryornu ordered his force through the gate. The Mɛlwikans cheered as the army unit, marching formally and with full discipline, entered the Mɛddoakwés gate. They marched east across the western enclosure, out its eastern "gluba" gate, then descended into the southern enclosure and across it to the Péskakwés Gate. As the force marched out and across the bridge, the town followed and cheered. At the top of the hill the foot soldiers turned left and started up the road; the cavalry continued straight south across the Mennea family's fallow fields before turning eastward.

The soldiers were reasonably fresh; they had marched a mere sixteen kilometers from their barracks in the capital, so seven kilometers more was not difficult. An hour after leaving Mɛlwika, about a kilometer from their destination, bugles sounded in the camp. The fact that the army was approaching had become known. General Aryornu galloped across the front of the advancing force to scout it one last time until he reached the advancing column of soldiers on the road.

Half a kilometer from the camp, at a point where the dead grass gave them a clear view of it, Aryornu ordered a halt. He advanced forward alone on his horse. “Andrulɛru, come out!” he shouted.

A lone horseman rode forth from the camp. The men slowly approached each other, eyeing each other, looking confident.

“Hail, General Aryornu.”

“Hail, honored Andrulɛru. I come bearing a message from our queen.”

“How is Her Majesty?”

“She is well. Honored Andrulɛru, she has considered the claims of Mɛlwika and the Dwobɛrgonɛ tribe to the Pɛskakwés and she has awarded the entire river to Mɛlwika. The water of this river is needed by the people who live downstream. She understands that this land has been ancestral property of the Dwobɛrgonɛ, but notes that all land belongs to the queen and is used by her leave.”

“Indeed it is, General, but we have never been told this land would no longer be ours, and it is a severe hardship to lose the land the very time we are counting on it for our animals.” He pointed to the bowl. “What will they eat?”

“Between here and the Spine, it is all green. We’ve had rain.”

“General, surely you understand the hardship this places on us. We don’t have the rights to all the land from here to the Spine.”

“But you have plenty of land. Fifteen or twenty dɛkɛnt from here there’s a creek that comes out of the mountains. It should have water right now. From there it’s an easy stage to the north ridge pastures. And you have created a severe hardship for these

people. The spring flood that usually flows off your land without your use should be stopped by their dam. You've let the water out again."

"Rivers are not meant to be blocked by man-made walls."

"The river belongs to the Réjé. She can block it if she wants."

Andrulɛru stared at the general. He was angry but didn't dare show it. "I don't know how the queen can expect taxes when her people cannot feed their wealth."

"That's an excellent point. You should bring the matter up to the Réjé during the midsummer council. I'm sure she will consider a reduction."

Andrulɛru smiled the smile of an angry man. "Then we will be honored to respect the Réjé's wishes. We will move to a new camp tomorrow morning."

"Excellent. The army will camp here."

"You are welcome, and are welcome to invite the Mɛlwika people to come close their dam, if they want."

"We will do that," replied Aryornu. He turned and rode back to his camp.

41.

The Fast

It took several days to recover from the damage done by the Tutanɛs. They had opened the penstocks, then damaged the mechanism; fortunately Amos was able to use a crowbar to turn the damaged parts and close the penstocks, turning off the Péskakwés entirely. But the PVC pipe was considerably harder to repair; the Tutanɛs had broken holes in almost every single segment. Wrapping the holes with alternating layers of heavy canvas and watertight plastic worked reasonably well. Within four days the pipes were functioning again and the irrigation canal had water in it. The fields were quickly flooded and farmers began planting cool-weather crops such as peas and carrots.

Mɛlwika's wall was mostly finished when the Tutanɛs left their campsite. Pɛrku was able to convince Aryɛru to ask the queen for permission to complete the wall over the next year using royal tax money; she agreed. Meanwhile, the farmers had several days before they were able to resume work on their farms, so they worked on their houses instead; Pɛrku and Amos organized work crews to move piles of building stone and mortar to public places to facilitate the building, and since the clay came from the moat and the stone came from strategic areas that had to be cleared, Pɛrku agreed to pay everyone by borrowing some of the last grain Miller and Mennea had in storage against the taxes they'd pay later. Pɛrku had a certain Robin Hood mentality; he liked to take from the rich to give to the poor. The majority of Mɛlwika had no objection. It reinforced their belief the town was the place of opportunity. Most had never had anything more

than adequate food and one change of clothes; they usually had less. Some didn't even possess a blanket. It seemed likely that in Mɛlwika their lives would change for the better.

A week after the Tutanɛ left, Thornton's calendar indicated that the spring equinox was just 19 days away. The family gathered after supper that night for a real Bahá'í feast—that is, one where only Bahá'ís attended the consultative portion—and discussed the calendar.

"How sure are you of the calendar?" asked Chris.

"We might be off by a day or two," replied Amos. "We've been making very careful astronomical observations, but not very often; we try to make our measurements every four days, but we have gone as much as two weeks. Thornton's been doing the reading, he and I have been devising the measurements, and he's been making them. What I am sure of is that Éra is a moon of Skanda and orbits its mother planet once every 24 hours and 1 minute. Éra's day is 24 hours and 4 minutes because Skanda goes around its sun and in consequence the sun is in a slightly different place in the sky after 24 hours, requiring three more minutes for the sun to reach the sunrise position. Skanda's axis may be tilted relative to the plane of its orbit just like Earth's, but the tilt seems to be much less; 5 or 10 degrees at most. That means Skanda has very mild seasons. Éra appears to have no tilt, or inclination, at all."

Mary shook her head. "I think I understood a little of what you said. My question is, when are the days and nights of about the same length? That's when we should fast."

"That's the problem," replied Thornton. "They are always of equal length."

"Then why do we have winter?" asked Chris.

“Because Skanda’s orbit around its sun is elliptical,” replied Amos. “I can figure that out because when we’re farther from the sun its disk is smaller, and the period of time between the beginning of the eclipse and the complete extinction of the sun is shorter. In the summer the sun’s disk is bigger and the disk takes longer to eclipse. Skanda itself, in contrast, is always the same size: 20.2 degrees across. That means our orbit around Skanda is circular.”

“If you’re right, the southern hemisphere will have winter the same time as the northern,” said Chris.

“Yes, and I’ve asked Modolubu about that. He said the crops are all harvested about the same time,” replied Amos. “Anyway, our calculations indicate that 19 days from now, the sun will be exactly of medium size and the seasons will change. The priests in Mɛddoakwés regard that date as the beginning of the year. So I think tomorrow we will begin to fast.”

“And if we do that, I think we will also have to switch our feasts to an Eryan schedule,” said Chris. “Based on an Earth calendar, today is the middle of a Bahá’í month. We’ll have to switch Bahá’í holy days over as well.”

“I think we should,” said Mary. “And if we are off by a day or two, we can make an adjustment later. It makes no sense to keep an Earth calendar here when our day isn’t even exactly the same length as Earth’s.”

“What worries me is that we have no communication with the Universal House of Justice,” said Behruz. “We can’t change the Faith; if we do, it is no longer the Bahá’í Faith. Changes like this need to be approved by the Universal House of Justice.”

"The problem we have is that we have to make some simple changes and we can't consult with the House of Justice," said Mary. "We're cut off. We have all the writings in English, even new translations, thanks to Thornton's connection to the worldwide web. So I see no choice but to invoke the unity principle. What we all agree on unanimously, or by majority, we must do; once there is one local spiritual assembly it will have to make the decisions; when there are two, they will have to consult together; when there are three, they will elect a national spiritual assembly to make decisions. If we maintain unity and consultation, if our intentions remain pure, we will have done our best and it will be acceptable to God."

The others nodded, one by one. Mary looked at them all. "Then shall we make a decision about this matter, or discuss it further?"

"Decide," said Lua.

"Alright," said Mary. "Shall we adopt the calendar Thornton and Amos have created, and start the fast tomorrow?" She looked around the table and one by one everyone nodded, even Behruz. "Good. See all of you a half hour before sunrise, then, even though I'm too old to fast!"

Thornton arose too early; fearful he'd oversleep, he awakened when his watch said 4:45 a.m. and he kept awakening every 15 minutes thereafter. Sunrise was 7 a.m., and about that time every morning he reset his watch to make up for the 4-minute difference between Éra's day and Earth's. He kept looking at his watch and finally rose at 6.

"Where are you going?" said Lébé, who stirred when he got out of bed.

“I’m sorry, but I forgot to tell you; we’re having breakfast at 6:30 this morning. It’s the beginning of the fast.”

“The what?” Her eyes were open; he could see them in the semidarkness.

“The Bahá’í fast. It occurs every year for the 19 days before the first day of spring. Today is the beginning of that period. We can’t eat or drink from sunrise to sunset.”

“Really? You didn’t tell me. But what about Mary and May?”

“Mary doesn’t have to fast because she’s more than 70 years old, and May is exempt because she’s pregnant.”

“No food and drink, huh? That must be hard.”

“At first, but in a few days you adjust.”

“What’s the purpose?”

“It’s a kind of sacrifice. We do this because God has commanded it. It is a test, but a mild one. It is a symbol of our faith and dedication.”

“Interesting.” Lébé thought for a moment. “Can I eat breakfast with you, though?”

“Yes, of course! And afterward we’ll pray; you’re free to join us for that as well.”

They hurriedly dressed and came downstairs for an early breakfast. About the time they finished and were ready for prayers, Kwétɛru and Mitruiluku came down for breakfast. They were surprised that the family had already eaten.

“Don’t worry, I’ve got your breakfast ready, too,” said Mary in Eryani, pointing to pancakes and jam she and Liz had prepared. “I’ll even join you, if you’d like. They are going to the other room to pray. This is the fast.”

“The what?”

“The fast. Bahá’ís don’t eat and drink from sunrise to sunset for 19 days right before the beginning of spring.”

The rest of the family walked out of the dining area to Chris and Liz’s living room to pray. Lébé went with them and, on their request, sang a hymn of Widumaj at the end. Then everyone headed off to work. For Thornton that meant driving a rover all day; the family still had a lot of plowing to do for farmers who had helped them dig the irrigation ditch, and they were plowing extra land as a bonus to some of the people who had helped build the wall. That spared their granary of some of the demand on it, but it meant less time for the génadɛma.

Fasting and plowing all day was exhausting. Thornton took a lunch break, but the farmers wanted to know why he wasn’t eating, so he was so busy explaining he had no time to go home. When he finally came home, Lébé was waiting.

“How are you doing?” she asked, worried.

“Oh, I’m fine; just tired. A few of the furrows at the end got a little crooked.”

“I’m amazed you could do it! No food; that I can understand. But no water?”

“The first day is the hardest. But I wasn’t digging with a shovel. I was moving levers and driving.”

“That is difficult in its own way!”

“Yes, it is. How was your day?”

“Excellent. The class for women went well this morning. Liz is teaching reading by teaching cooking. Today we had twenty women for almost three hours. Lua talked about food, also; vitamins and things.”

“Good. Did someone ask about the fast?”

“Oh yes! Liz was cooking without eating and everyone wanted to know why.”

“That’s why I wasn’t home at lunchtime. The farmers were asking too many questions.”

“I had three women ask me what the Bahá’í Faith is.”

“What did you say?”

“I told them what I knew; about Bahá’u’lláh, prayer and fasting, and the equality of men and women.”

“You told them about that?”

“Yes, of course! They were amazed and amused, I think. I suppose their husbands will not be happy.”

“I hope their husbands don’t get too mad at us.”

“Maybe I agree with Kwétɛru; you have to anger some people to make changes.”

“Yes. that’s true.”

“Tomorrow I’m going to fast, too.”

“Really?”

“Yes. These are teachings that are very important. And I want to sacrifice for Bahá’u’lláh, too.”

“Sacrifice for Bahá’u’lláh?” Thornton felt tears in his eyes.

“Yes. You love him so much that I have come to love him, too.”

Thornton embraced her. “Then I guess you’re a Bahá’í, too.”

“Yes, I am.” Her voice was choked as well. They were both crying. “But if I am a Bahá’í, can I still sing the hymns of Widumaj?”

"Yes, of course! We sing them!"

"That's true. But who *is* Widumaj? Did God really send him?"

"We don't know, but I think so," replied Thornton. "Let's go talk to mom and dad."

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The fast soon became a routine. Everyone in Mɛlwika asked questions for a few days, then accepted it. Kwétɛru's reaction was most surprising; he was repulsed by the fast and moved to the génadɛma building. Chris made the most of it and encouraged him to settle there; it was better to have someone living in the building anyway, since the doors had no locks. Every evening after supper Lébé sat with Lua and May to deepen about the Bahá'í Faith's history and teachings.

About ten days into the fast Chris drove to Mɛddoakwés to meet with Roktɛkɛstɛr. The engineer had not been around town much because he had been busy building a dam on the Dwobrébakwés, the tributary of the Arjakwés west of the Isérakwés.

"We were able to catch the end of the spring melt," said Roktɛkɛstɛr to Mennea. "We didn't catch much water, but it's better than nothing. The first two villages will be able to plant a second crop if they want, or irrigate their first crop better, and next year everyone will benefit. Can you or Amos drive over to the dam next week? I wasn't able to explain to the headman when to open the dam and when to close it. Right now we've left it slightly open; the river will be flowing another month or two."

"Not next week, but maybe the week after," replied Chris. "Will that be alright?"

"Yes. How is the Péskakwés?"

"We are still storing water in its reservoir. We have the river turned off because the Arjakwés is still spilling over the dam."

"And Moritua is full, I hear. That will make the Lord happy."

"Yes, it filled yesterday. They're now letting water out. Mɛlwika has a wall all the way around it that goes to the mountain peak above town; Pɛrku insisted on including it to guarantee the town's security. Amos figures we could have six hundred houses within the walls within a few years."

"Everyone is talking about Mɛlwika. The Réjé wants it to be safe. General Aryɛru recommended that we improve the road to the Spine so that we can move the army back and forth better. There's also a spot on the Tɛrsakwés about a hundred dɛkɛnt east of here where we can build a dam on it. It's at least as large as the Arjakwés here, or maybe bigger. It goes through a gluba that's already partially blocked by a landslide, which makes a lake above the gluba. There's a big Tutanɛ village there named Gordha. If we improved its water supply they would stay more and wander less."

"And settle. That would be good. There's a lot of land east of here, to the Spine. How much of it is desert?"

"About half is rolling desert, slowly rising in altitude. The Tutanɛ village I mentioned is halfway to the Spine. Beyond it, the land rises into forested hills and finally the mountains making up the Spine itself. We're talking about five days' walk to the royal garrison at Kostɛkhéma, the central pass across the Spine. That's something I want to talk to you about, Chris. I want to improve all our roads. Right now we have royal rodhas; I want to replace some of them with royal wɛgnas."

"What's the difference?"

"A rodha is good to ride on; a wɛgna is good for wagons."

"Oh, of course." Chris digested the words; a "riding" or "road" versus a "way" or "wagonway."

"The rodha to the Spine is barely a rodha. I want to upgrade it so wagons can pass along it. But I don't expect it to become a wɛgna any time soon because there is no need. Even if there were reasons for wagons to travel to the Spine regularly, the Tutanɛs would be a constant problem. Right now the Spine gets supplies three times a year; each time an army garrison travels with the caravan.

"But the rodhas to Ora definitely need to become wɛgnas. There are three; via Anartu, via Bɛllɛdha, and via Tripola. I'd like the advice of you and Amos about the standards we should set for them, in terms of width, drainage, bridges, surfaces, etc."

"On Gɛdhéma the best roads have a solid concrete surface. But perhaps all you need is gravel or stone."

"Perhaps. Wɛgnas will be very expensive, but I think I have convinced the Réjé that she should be known as Duktɛrésto Bulu."

"Bulu" meant "the builder." Chris smiled. "That could be a very impressive and important title, to future generations."

"I hope we all take it seriously, including the Réjé. The result could be much progress for Éra." Roktɛkɛstɛr spoke with some passion in his voice, which was unusual; he was a quiet man, almost plain. His use of *promgrɛdho* or "progress" surprised Chris; they had invented the word just months earlier, when speaking to Wɛrétrakɛstɛr about the changes occurring on Earth. It literally meant "walking toward" without saying what the goal was; such was progress.

“Is the Réjé willing to devote resources to the effort?”

“Indeed, she has agreed the army engineering corps can be expanded in size considerably as long as the men have combat training. But she also said to me she wants to see a contribution from the génadɛma in the form of the rovers. Your two rovers can do an incredible amount of work quickly; as much as twenty men. If your two rovers can be used on the road to the Spine, we can complete it in a month or so, and that will leave us time to improve the other rodhas we want to call wɛgnas.”

“We can’t help until the planting is over because the rovers are being used to plow land. During the summer we may still need the rovers one or two days a week; we use them a lot.”

“For what?”

“Pumping water. Transportation to Mɛddoakwés. Picking up iron ore for the iron works. Many things. Besides, the rovers must be driven by me, Thornton, Amos, Behruz, or Liz. The only Eryanɛ trained so far is Mitru, son of Miller. They must be used carefully and skillfully, or they may be broken.”

Roktɛkɛstɛr thought about that. “Perhaps you could train someone on my staff to use them. If the rovers break, the aliens can bring the things you need to fix them. The rovers are a resource for the entire world, after all, and the parts the aliens bring are payment for our joint cooperation with them.”

“True. But these are very complicated machines, and there are some things that can be done to them that make it impossible to fix them.”

“Please consider this request very carefully,” said the chief engineer a bit ominously.

"Alright. Who do you suggest?"

"Sorgénu. He learned surveying well, he learned to read and write your new system well, and he learned your counting system well. I think you agree he has good judgment?"

"Yes, yes. Why don't you send him up after the planting is over. Perhaps we can work with him and with your road building team to convert the rodha to Mɛlwika into a wɛgna?"

Roktɛkɛstɛr smiled. "Yes, that is a good plan. It already has heavy wagon traffic. We could rebuild it first to see how much work it takes and what we should do. That would keep your rover close to home while he learns, and my road-building team could stay in their barracks here while they work. That is excellent."

"I suppose we can't get some sort of tax break for this?"

"No; you are providing a legitimate tax on the labor of your equipment. But the Réjé is still thinking about your suggestion that you train school teachers for every town and village. I think she may be willing to support the training of a few dozen for the major towns. That would be a good start."

"Yes, better than nothing," agreed Chris.

Before dinner Chris found Amos to tell him of the General's plans. "He doesn't understand the rovers," said Amos, shaking his head. "They can be broken in ways we can't fix."

"The motors would be my big worry," replied Chris. "We can more or less replace everything else."

"Well, I suppose we could replace the motors, too, if the aliens supplied the parts. I've heard incredible stories about the performance of rovers if they're maintained consistently."

"Me too. I can tell you stories myself. I also visited with the Lord Mayor Kandékwɛs. He accepted Miller's sales price for half-doli iron pipe. The queen had agreed to pay for the water tower next to the citadel and the pump, once we have one, and the Lord Mayor will pay for the water pipes. He wants 500 doli this year and maybe 500 next year if the work goes well. That will provide water to one major street every year."

"Even that will help fire fighting enormously. I have good news regarding steam wagons, which will help the rover situation. Yimu has now built four pressurized water boilers with fireboxes. Today we took the fourth one—it's brand new—and intentionally pushed it to its limit—or tried. I installed the pressure gage and we closed up the boiler and started the fire. We put out the fire when we hit twenty atmospheres of pressure, which is as high as that gage goes. I didn't want to blow it up if the boiler ruptured."

"So the technology is proven."

"More or less. The rolled steel is much lighter than cast iron for the same strength. Once we can manufacture steel wire, we can wrap it around the boilers, making them even stronger. We've already started machining the parts to make a two-stroke piston and we've designed the parts for the transmission, which we should be able to machine next. In two months—maybe three—we'll have a wagon that moves under steam power."

"Great! That will help! But the steam wagons will be much slower than the rovers, right?"

“Much, much slower; I doubt the first model will go over twenty kilometers per hour. They will be much bigger and heavier; the wooden wagon with steel reinforcements will weigh two or three tons and the firebox, boiler, and pistons will add half a ton. We’re designing a steam wagon with two front axles close together, each powered by its own steam piston, so that if either piston and transmission fails there’s a second one. The vehicle will usually run on one piston on flat ground and will use both only in mud or on hills.”

“How much can it pull?”

“We’ll see. The wagon can hold one or two tons of cargo. If it can pull a passenger trailer, and maybe a cargo wagon as well, then that one engine will be able to pull what is essentially a small train from city to city. That will produce very good economics.”

“Excellent. Let’s hope Miller doesn’t decide he has to drive all the existing caravan owners out of business. He should sell steam wagons to them, too.”

A bell rang in the background six times. Chris looked at his watch; 6 p.m. “What was that?”

“Miller decided to put the emergency bell to other uses. He’s promised May and Liz financial support for a year for the women’s classes in return for a watch. May has that old windup watch that works pretty well—it loses a few minutes a day—but she doesn’t use it, so she sold it to him. He now has a kid ring the bell every hour on the hour, from sunrise to 10 p.m. That way he can tell his workers when they have to be at work, when they can eat lunch, and when they are finished.”

“Good. Mɛlwika now has a public clock; a first on Éra. Well, since it’s six I had better run around town; I’ve got a few errands.” Chris headed out the door and down to Icehouse Road. He turned left and walked to the house and shop of Rudhu. The young man had built a stone structure with a big room in the front for working on glass and a smaller room behind for living quarters. The rest of his lot was an L-shaped yard, which he planned to enclose as he needed more space. The front room was heaped with glassmaking sand the rover had hauled in a week earlier. Rudhu was hunched over his furnace, manipulating a bellows to make the coal burn hotter.

“Hail, Rudhu!”

Rudhu barely looked up from his task. “Hail, honored Mennea.” He pointed. “I’ve finished enough panes for an entire window today.”

Chris looked at the panes. Each was a flat square of glass 10 centimeters or about 4 inches across. The Génadɛma had 32 windows, each 65 centimeters wide and 130 high; with the wooden frame to hold the panes, each window would have 6 panes across and 12 high. He picked one pane up. The glass was slightly wavy and quite thin; he could actually bend the glass slightly.

“I’d make this thicker.”

“Then it’ll be wavier. You said you wanted it as uniform as possible.”

“Make it thicker. We’ll break a lot of these putting them in the frame. I suspect the waviness will decrease as you get more experience.”

“I’m getting faster, too.”

“So I see. Have you figured out how to cut the glass?”

“Yes, the new knife Amos asked the foundry to make works much better.”

“Excellent. I’d better go, Rudhu. Do you have food?”

“No, I spent that last payment on stuff for the shop.”

“Then come by for supper. The bell at the foundry will ring seven times and you’ll know when.”

“That bell is driving me crazy!” replied Rudhu.

“I’ll see you later,” said Chris. He walked out of the shop and down the street toward the eastern gate. As he approached, Saréidukter came in carrying a hoe and shovel. Her older daughter followed, carrying Malité.

“Hail, Saréidukter! How’s your farm?”

“Hail Honored Mennea! The peas and carrots are coming up and I can’t wait to plant my wheat. I hope the water will last.”

“The water will last, good woman. How are the girls?”

“They are well.”

“Excellent.” He waved and headed down Péskakwés Road, talking to several people as he went. He came past Modolubu’s paper shop last. He stepped in the open door. Modolubu was hard at work.

“Hail, Modolubu.”

“Hail, Honored Mennea.” He pointed to the finished paper. “I’m making it, but no one is buying it!”

“Don’t worry, the génadɛma will buy it. But I think Her Majesty’s servants will discover its value soon enough.”

“I hope so, because I want to make some money!”

"We may be able to give you other tasks too, don't worry. Have you approached that father about his daughter yet?"

"No, no. I need a little more prosperity, so please sell the paper!"

"Next time I go to Mɛddoakwés I'll speak to several people. Thornton goes two days from now; maybe he can talk to a few people."

"Good. I'll make more money if I don't sell it to you!"

"Okay. You have everything you need?"

"I don't have a shortage of rags any more; I have a standard arrangement with a merchant in town, who collects them for a pittance and sells them to me for 1 dhanay per 10 lɛdhi."

"Good. Behruz is supplying the chemicals?"

"Yes, but I wish they were cheaper!"

"And we aren't making any money on them. Chemicals are expensive. Good day, Honored Modolubu."

"Good day, Honored Mennea." Chris walked out of the shop and home, satisfied that his business "partnerships" were doing well. Three men had approached him asking for similar arrangements in tanning, shoe-making, and weaving, and he had turned them down. He had no technology to offer them; not yet, anyway. Weaving, in particular, would have to be mechanized at some point soon, but they didn't have the resources to do it yet. More opportunities were being lost than they could pursue.

A week later the fast was nearing its end. Mitruiluku had started fasting as well and praying with them daily, though he never declared a belief in Bahá'u'lláh. Mitru had sat

with his sister Lébé down by the river several times to talk about religion; ironically, Diné had been telling him about the fast and the Bahá'í teachings, even though she had shown no interest. Lébé had also begun translating Bahá'í prayers and a few extracts from the Bahá'í scriptures into Eryani.

Shortly after dawn Chris climbed into the rover, pulled it out of its garage, hitched up the trailer, and headed for town. The back immediately had five passengers, including Modolubu, who had to purchase some items and see friends. Éra had never had clocks and therefore business did not have schedules; shops were open when the owners were there, and work was done when their friends didn't drop by. It was an inefficient but pleasant way of life, endangered by Mɛlwika's hourly bell.

He followed his usual route, stopping in Nénaslua, Béranagras, and Boléripludha, detouring out of his way to pass through Morituora, then heading for Mɛddoakwés. The trailer was soon full with farmers heading to houses in other villages to visit friends, or take a sack or two of something they had made over the winter to the city to sell. The population of Mɛddoakwés had gotten used to the vehicle by now and no longer stopped to look at it when it drove by. Chris stopped at the northeast gate to let everyone off close to the marketplace, then drove around to the postern gate that normally was reserved for palace and citadel traffic only. The guard at the gate opened it and let him drive in. He drove down the alley past a second gate that led into the citadel complex and parked. Kaspuku, a teenage brother of one of the young men settling in Mɛddoakwés, was there waiting for him. They had hired him starting two months earlier to sit, watch the rover, and wash it; the guards let him get water from the palace. Chris could also leave a list of

tasks with him that one of Wɛrétrakɛstɛr's students would pick up and complete later in the day.

Kaspuku was there, but he wasn't alone; a man in his twenties was with him. He looked familiar.

"Hail, Honored Mennea," he said when Chris stepped out of the rover. Perhaps you don't remember me. I am Mitrubbaru, the youngest son of Lord Mitru of Ora."

"Oh, yes, I do remember you now! Hail, Most Honorable Mitribbaru!" The son of a lord, especially the youngest son, did not deserve to be called "lord" but a mere "honored" was an inadequate title. "I am pleased to see you, after half a year!"

"It has been a long time. Perhaps you recall that when you visited the Lord of Ora, he indicated his desire to send you students."

"Yes, of course I do. We had a lengthy discussion about the génadɛma."

"Indeed. It is my earnest hope, Honored Mennea, that you are prepared to receive students from Ora, for I have come as the leader of a company of them."

"Really?" Chris was surprised; thank God they had built all those dorm rooms! "How many in your company, Most Honorable—-?"

"Twenty, Honored Mennea. I bear a letter from my father to Wɛranu, Lord of the Exchequer, to release to you eight dhanay per week for each of us to cover our expenses."

"Excellent! That was the amount your father mentioned to me, but I think my costs are a bit more than we had figured."

"I see. I think we can pay nine per week."

"Nine, then. How long do you plan to stay?"

"Three months was the Lord's suggested period of study."

“Three months will provide all of you with an excellent education, though it will not complete it. I believe even Widumaj says one should always be learning.”

“He does, Honored.”

“How long have you been here in Mɛddoakwés?”

“We arrived just after the coal wagon left two days ago. We would have walked, but most of us have friends in the city, and we were told you would be here this morning.”

“I am glad you were not inconvenienced. How did you get here?”

“We accompanied caravans. It was a ten-day walk. One of our party fell very ill; he is recovering. Have you a recommendation as to when and how we should proceed to Mɛlwika?”

“Indeed. About mid afternoon I will be returning to Mɛlwika. I am sure all of you can fit on the trailer of my rover. It will be crowded, especially since there will be other passengers, but I think we can manage. Where are you all staying? I can send someone for you at the right time.”

“Some of us are staying with Wɛrétrakɛstɛr, others in the palace itself, and two in the temple complex. I am in the palace and if someone summons me, I can assemble the party.”

“Excellent. Mid-afternoon, then.”

42.

Students

Chris immediately called home and informed everyone that their génadɛma, heretofore operating at a very slow pace with only a few classes, was about to become a full-time operation. They had paying customers; indeed, customers that promised to pay them about 3,240 dhanay over the next three months! That was almost equal to the combined worth of the Mennea family and the génadɛma when it had last peaked. It meant hiring cooks and washerwomen, producing educational materials, and assembling a lot of lessons very suddenly. How could they do it? Thornton was busy plowing; they still had a week or two of promised work to do. Amos was committed to the steam wagon at the foundry. Behruz could only do so much; he was a better chemist than a teacher. Lua had a constant stream of patients that kept her busy half the day. May was very pregnant; she was due in a month. Kwétɛru and Mitruiluku were coming along as teachers, but had a ways to go. They also had commitments to Roktɛkɛstɛr that seemed to grow more involved every week.

Chris made a flying visit to Roktɛkɛstɛr to reschedule their business meeting. The chief engineer was sympathetic; he had met the arrivals, who were the talk of the citadel. Chris canceled his meeting with the Lord Mayor. He went to Wɛrékrakɛstɛr's and handed the cellular telephone to the widu himself, showing him how to make calls and receive them. Then he jumped into the rover and drove home as fast as he could. That gave him half a day to get ready for the arrivals. He plotted strategy with Liz and Thornton over the

radio while he drove; Thornton had already driven in to tell her, so while he plowed the three of them talked.

"Feeding twenty is not that difficult," said Liz. "We've got the food. This may sound crazy, but the best person to hire is Awsé. She's extremely well organized; she already makes sure a household of seventy is fed every day. If she were willing to coordinate her various daughters in law, we'd have plenty of food."

"And the wash?"

"I'm not so sure they'd do that. That may be a problem, actually, because Mɛlwika has almost no women, and men won't do it."

"Maybe we can ask Wɛranolubu if there are women in Nénaslua who can help," said Chris. "I'll stop and ask him. Can we get the génadɛma cleaned up today? We have the rooms for these students, but they have sat empty for months and various people camped in them during the winter."

"A few are a real mess," agreed Thornton. "We need to set clear rules about keeping the building clean."

"We'll need clear rules about drinking and general behavior, too," added Chris. "Who can do the cleaning?"

"We could probably find some people around town who'd work if we paid them double. There are always the soldiers. They're willing to do almost anything to make a little extra money."

"Can you talk to Pɛrku, Thor? That'd help a lot."

"Sure, I'll do that. But I have the plowing."

“Postpone it if you can; this is more important, and the plowing can wait a day. Or hire Mitru to do it for whatever he’ll take. I’m sure digging coal and iron don’t require that much supervision.”

“I’ll look for him at lunchtime. Dad, what will we teach them? Three months; that’s a lot of classes!”

“I know. We’ll have to figure out the details as we go. We’ll start with reading and writing the new system using the hymns of Widumaj, since most of them are probably educated and know many of the hymns already. Mitruiluku can do it. That frees us to plan other classes. How many of the books do we have?”

“Maybe three or four!”

“Sounds like you’ll be up all night printing more.”

“Kwétɛru will do that; we can print twenty copies by morning, though it’ll take another day to get them bound properly. Maybe you could start with numbers?”

“Sure,” agreed Chris. “Numbers the first day; we’ve got basic stuff we can print up to teach that. Then we’ll have the books ready and we can teach reading and writing. We’ve got the lessons we taught the surveyors and scribes; about twenty-five of each, I think. I’ve started teaching accounting and should plan ten or so lessons in that. How many lessons did you give to Wɛrétrakɛstɛr’s classes?”

“Maybe fifty or sixty, but they overlap with the hymn book heavily, and with the surveyor’s classes.”

“True. We’ve got a lot of material; I don’t think we’ll have trouble there, except we have to deliver a lot of classes every day. Probably four hours a day, with supervised

study as well. Lua will have to present classes on health and nutrition. And there are tours of the foundry."

"Why are they here?" asked Liz. "Do we know what they want to learn?"

"I haven't asked. I think they expect us to teach them everything. I'll ask Mitrubbaru about that."

"If they want everything, they'll be sadly disappointed," said Liz.

Chris stopped in Nénaslua and found Lord Wɛranolubu. He always wanted to make money for the village, or at least help it get ahead; this provided a unique opportunity. He agreed to provide three female servants—widows and grandmothers—for washing clothes, cleaning the génadɛma, and assisting with the cooking for free if he could send two students to attend the classes; one from Nénaslua and one from Béranagras. He agreed to cover their meals; that was how badly he wanted schoolteachers for both villages. Chris wondered what the Ora students would think, but accepted. The two local students had to come five days out of six and had to arrive by sunset that evening for the beginning of classes. Most of the time they would have to walk an hour from their houses to the génadɛma.

One problem solved. When Chris returned to Mɛlwika, Awsé had agreed to coordinate the cooking; John Miller would probably disapprove, but he would disapprove far less than Eryanɛ husbands, who would never consider the possibility of their wives earning money. Pɛrku, Thornton, Lébé, and ten soldiers were hard at work cleaning the génadɛma; the soldiers looked forward to twenty arrivals speaking with the accent of the western shore. Liz grabbed Chris and asked for help finding furnishings. None of the rooms had straw mattresses. A quick visit to two villagers was enough to arrange for

loads of thatch to be gathered and brought to the school building. Liz went to Mimɛnéstu the potter and bought every pot and plate in the shop. She also ordered fifteen standardized sets of some items. Chris ran to his counting room to see how much they had. He'd have to get an advance from Wɛranu that day; he had grain but no cash.

In early afternoon Amos begged some time from the foundry and came to look at the bath and latrine areas. They had been installed but not used. The village needed a public bath badly and they had never been able to finish the work; today was the day. The fourth boiler made by the foundry was hauled over to the school and installed to make hot water for bathing; steam pressure would force it up to the hot water tank on the second floor. The women from Nénaslua would be busy hauling water from the river to fill it and the cold water tank. A good head of steam would allow twenty to wash every morning, and with several refills others could come in to wash later in the day.

By midafternoon a lot of progress was being made and Chris could leave. He hitched both trailers to the rover and drove back to town. First he called Wɛrétrakɛstɛr to tell him to tell the students it would be sunset when they drove back to Mɛlwika.

That gave him time for some fast business. He found Roktɛkɛstɛr again and arranged for two soldiers to start training on the rovers immediately; let Mitru teach them by having them plow the fields.

"You're clever, Mennea," said the chief engineer. "Don't worry, I don't plan to take the rovers from you. We just want some use of them."

"I know, and so do we. Be patient and wait for the steam wagons."

Roktɛkɛstɛr laughed. “Maybe this group of students will speed that up! Watch out, Mennea. A lot of people are talking. Some in Mɛddoakwés are jealous of the attention Ora is getting from your school.”

“The génadɛma is open to all. If you have students you want to sign up for the three-month program, let me know today. The cost is 9 dhanay per student per week if you want everything; room, board, wash of clothes, and classes.”

“Nine? That’s a lot.”

“That’s the cost.”

“You’re making a lot of money. I’m glad for you.”

“General, we’re spending all of it. Do you have students?”

“I’ll go talk to the Réjé right now. I bet she’ll authorize three or four students, if for no other reason than to keep an eye on your program.”

“That’s fine. Could you talk to the Lord Mayor as well? It would be good to ask him about local people who could go. If I go talk to him now, he will want to invite me to supper and I have to get home before then, so I will have to turn down the invitation.” Chris smiled. “Since you are in an office all day, away from your house, I know I can stop by, drink tea, we can talk, and I can go. But the Lord Mayor works at home and entertains everyone.”

“Many consider my style of working uncivilized, but my children are so demanding right now, I find it easier to work here. I enjoy our quick visits, Honored Mennea. I’ll talk to the Lord Mayor after dinner when he can’t entertain me for a long period of time.”

“Thank you. I must run; would Wɛranu be in his office?”

“Probably for a little while still.”

Chris stood. “Good. Thank you, my friend.” He had never called Roktɛkɛstɛr a friend before, but the hours they had spent together studying dams and discussing water had forged a friendship.

“Thank you, friend Chris.”

Chris Mennea headed out the door and back to Wɛrétrakɛstɛr’s house where Mitrubbaru was visiting. He found the young man and explained the need for at least a two-week payment. Together they went to Wɛranu and got the money. When they returned Wɛrétrakɛstɛr handed the telephone back to Chris. “Liz called; call her back. She said there was nothing urgent.”

“Thank you.”

“What’s that?” asked Mitrubbaru.

“A telephone; it allows us to speak over a long distance. I’ll show you later. Are all the students ready to go?”

“Yes, they’re all in the courtyard waiting.”

“Excellent. Then let’s go.” Chris said goodbye to the widu and they headed for the courtyard where the students waited. They all headed out to the rover where the students climbed into the two trailers in back. Chris beckoned Mitrubbaru to sit in the vehicle itself with him, which he did with hesitation mixed with fascination.

The guard opened the postern gate. Chris drove out and toward the northeast gate, where a crowd awaited. “As I told you, whenever I go between these towns I provide free transportation to anyone who wants it. Your students will mix with the local people; mostly peasants.”

"They'll be fine," replied Mitrubbaru, a bit reluctantly. He looked around at the rover. "How does this thing work?"

"That's one of the subjects we'll cover in the three months of classes," replied Chris. He looked back to see whether everyone had climbed onto the trailers. Then he started forward, heading for Morituora. "What goals are we setting for these three months of classes?"

"When you and father spoke, he was talking about setting up a génadɛma in Ora, like yours; a twin institution. I think we will call it the Mitrui Génadɛma. Its purpose will be to bring change and new ideas to Ora."

"*Promgrɛdho*."

"*Promgrɛdho.* I suppose one could call it that. The génadɛma should bring prosperity to Ora, also. We'd like to have all your knowledge; or as much of it as possible."

"We can't teach you everything in three months, but we can lay a foundation. We will need to teach the students our system of writing and numbering. After that we can do many different things. Should everyone study the same subjects or different ones?"

"How many subjects can you teach?"

"I suppose twenty or thirty. How does this sound? We'll provide a basic course for about a month for everyone, which will include a summary of the other subjects; then we'll offer separate courses on natural science, surveying, Eryani literature, engineering, healing, business, and agricultural improvement. Your students can choose among those seven. Maybe we can think of one or two other subjects as well. If a student could take

two every day for a month, then two others the next month, they could take a total of four."

"I don't even know what most of those subjects mean. But it sounds like a good plan."

"We'll present a detailed plan to the students in a few days. We want your education to be of use. I should also say that your twenty students from Ora are not our only students. We have others as well who will be in the same classes."

Mitrubbaru hesitated. "That's fine."

"We also have some expectations on the students: they must be up early for classes, they must study at night, they must go to bed at a reasonable hour, and they can drink beer and wine only on the last night of the week and the first day when they have no classes."

"I see. Very well." That he hadn't expected.

"Good. Now excuse me while I speak to my wife on the telephone. We'll explain to you how telephones work as well, in one of the classes." Chris picked up the phone and dialed the number for the other phone. When Liz answered they spoke mostly in English about the plans for the night while Mitrubbaru listened, mystified.

He drove slowly with two heavily loaded trailers; he didn't want anyone to bounce off. Even so, Mɛlwika was only half an hour away. After arriving, Chris stepped out of the rover. "Welcome to Mɛlwika and the Mɛlwika Génadɛma!" he said, pointing to the building. The students looked at it, curiously. Half the windows on their side of the building had wooden shutters; the other half had newly-installed glass windows. They had never seen so much glass and were intrigued. They had also never seen a town with

signs like “Welcome to Mɛlwika” over every gate, and little signs at every intersection stating the names of the public ways. They may also have never seen a town with such clean streets.

Chris led them inside through the main door opening onto the “Flower Court,” Mɛlwika’s one pretty public space. The geranium-like flowers had been renewed and the apple tree was budding. They entered classroom number 1—the nicest classroom, with the glass windows—and Chris suggested they all put down their possessions there so he could give them a tour. For half an hour they walked through the building seeing the classrooms, dormitory rooms, and the kitchen, dining area, and bath in the basement. Everyone selected a room for their own use; fortunately the cleaning had been finished.

By then the food was ready, so everyone went downstairs to the dining area. Chris and Liz had invited quite a range of people to join the inaugural dinner, partly to make a point. Miller and his three oldest sons were there, as were Mitru and Diné, who actually seemed to be enjoying each other’s company. Pɛrku was there with his second in command, Aisu. All the faculty were there, as well as the family’s “clients”: Modolubu, Dhugstɛru, Rudhu, and Sareiduktɛr. But Chris also made the point of inviting “one eye” as he was often known around town: Estoibaru, who wore his glasses proudly and was glad to explain them to anyone who asked.

After they finished eating, Chris rose. “Dear Friends of the Mɛlwika Génadɛma, we gather here tonight to start a three-month course of general studies, the first we have offered. On behalf of all of us here at the génadɛma, I want to welcome Most Honorable Mitrubbaru and his fellow students.” He paused to nod to the new arrivals. “We will now begin the program with words of praise to Esto.”

He sat and Diné walked to the front of the room to sing the Hymn of the Lamp. She had a particularly beautiful voice. Then Lébé stepped forward and recited a prayer by `Abdu'l-Bahá about learning; it had just been translated into Eryani days earlier.

Then three musicians took the front of the room to play the *wɛwétru* or panpipe, *bɛbautru* or drum, and *tritonu* or three-string guitar. They were friends who had moved to the town together from Morituora, farmers who were very good musicians. They sang several popular folk songs and much of the audience joined in.

When they finished Chris stepped forward again. "Allow me to introduce everyone present, so that we all know each other. We will meet even more in the upcoming days." He went around the room introducing everyone and often saying something about them. "Our Lord, John Miller, wishes to greet everyone, so I will turn the floor over to him."

Miller rose but stayed at his table, which was centrally located anyway, and brightly illuminated by candles. Lébé had given him some ideas of what to say. "It is my great honor to welcome all of you to Mɛlwika. Our génadɛma is a fine institution; an institution dedicated to serving others. Its purpose is to share knowledge with all. But in the process of giving knowledge it also seeks to make its students better people: more trustworthy, more honest, more giving to others. I have been amazed that it has been able to accomplish so much and look forward to this formal program of courses. I wish I could take them myself; I really do. If I can be of assistance to any of you, please speak to me. Thank you." And he sat. He had done the lordly on the occasion and Chris was obviously pleased. He stood.

"The commander of our garrison, Pɛrku, also wishes to speak. Commander."

Pɛrku rose. He was dressed in his finest military clothes and cut an imposing figure. He spoke in the accent of the Western Shore for the occasion. “I wish to join Lord Miller and Honorable Mennea in welcoming you to Mɛlwika. This is a remarkable town. We are leading the progress of Éra and creating a new society. It is a new society where everyone can read and write, where we create wealth together and we all live better. The queen’s garrison is here to protect everyone from threats to the town and to our property and lives. We have not had to protect the town’s peace often, but we have acted. I am sure all of you will be good neighbors to us and make a good contribution to Mɛlwika. I am delighted to hear the accents of others from the western shore, and look forward to meeting you all. Thank you.”

Chris was surprised again. Where did Pɛrku hear this word, *promgrɛdho*? Was everyone in Mɛlwika now using it? A new society where everyone can read and write? Such a dangerous idea; Chris would have never breathed it in public, but it sounded safe and natural when uttered by a military commander.

Chris rose and walked to the front. It was now his turn.

“I am sure I speak on behalf of everyone in the génadɛma when I say we are excited and pleased to have the twenty of you here. In the few hours since we learned of your arrival we have quickly planned a three-month program, which will have some additional students in it as well. We have been preparing courses on various subjects for almost a year; your arrival gives us an opportunity to organize the courses and coordinate them together. For this we are grateful.

“We also look forward to working with you to determine what subjects the Mitrui Génadɛma of Ora will need to teach. Having two génadɛmas presents many opportunities

for collaboration and learning together. Éra has a long way to go to be ready to be put in contact with our long-lost cousins on Gɛdhéma. To be ready, we must overcome many challenges, and we don't even know what all the challenges are. Génadɛmas will be the place where the finest minds will be trained to overcome the challenges.

"Mɛlwika, as you have seen, is becoming an example of where Éra must go. About one quarter of the people living here can read and write a little. The children—boys and girls—learn to read and write together. Men working in the foundry who can read are given written descriptions of what to do. Some women have pieces of paper in their kitchens listing the ingredients for making a new dish for their family, and they review the directions when they make them. In the clinic, nurses write down information about patients so the doctor can follow their improving health. In some businesses, men keep a book where they record their sales and expenses. Mɛlwika is beginning to fill with signs showing the names of streets and businesses.

"Reading and writing is having an impact on our life here. Workers who can read are often paid more because they can do more. The génadɛma is trying to develop ways to teach reading and writing to anyone, regardless of their ability to pay. We seek to show respect to everyone, knowing that everyone, as Widumaj says, is a child of Esto, and this is more important than their station in life. Here in Mɛlwika every man is addressed as 'honored' and every woman as 'good woman.' We do not eliminate distinctions between people, but we seek to see beyond the distinctions and appreciate each one as a child of Widumaj. Knowledge is power, and if it is available to only a few it will go to those who already have power, thereby making them all-powerful while rendering the powerless helpless. We want to make knowledge available to all and trust all to learn how to use it.

The result here, so far, has been some improvement in prosperity and an increase in peace.

"We hope that your stay will help us refine our vision and share it with others across this world. Thank you."

Chris sat to applause from everyone. Then Mitrubbaru stood.

"Lord Miller, Commander Pɛrku, Honored Mennea, thank you for your warm greetings. I think we have all been overwhelmed by our reception! We wanted to warn you that we were coming, but there was no way to do it. You found out this morning we were coming and you changed all your plans to give us this dinner! I hope we can learn how to organize Ora, or even our génadɛma, half as well as you!

"We are also overwhelmed by what we have already learned. Most of us have seen your new writing system; you left a few examples in Ora when you visited, and we have studied them. We had no idea we would be greeted by 'Welcome to Mɛlwika' over the gate as we entered this town! There are so many little things we have already observed, it will take us days or weeks to understand them all. We are your eager students, seeking to work hard and learn much over the next three months."

Mitrubbaru sat to enthusiastic applause from everyone.

43.

Steam Wagon

The school got off to a slow start, in spite of the students' enthusiasm. The next day the Mennea family provided an orientation, an effort that required them to stay up most of the previous night to plan it. It was attended by the twenty from Ora, two from Nénaslua, and Dhugstɛru, whom Chris admitted for free because he had done so much and had proved interested in everything. Six students from Mɛddoakwés, however, had not yet arrived.

Just figuring out how to register the students had pitfalls. No one on Éra had last names, though some people were known as "the potter" or "son of Wɛranodatu" or "of the Bɛrgɛ clan." When Liz registered the students she asked all of them to give a second name. Some were mystified by the request, so she just asked for the name of their father. They understood once she explained that the génadɛma wanted to keep records on hundreds of students and one name would not be enough. Some joked that soon she'd want three names; and indeed she soon wished she had asked for three.

The second day of the program was new years, a day of celebrating and no classes. The day after that the six students from Mɛddoakwés arrived and formal classes began. They gave the students a full day of classes five days a week. The morning began with a three-hour class that included lots of time for questions, then a two-hour class in the afternoon after lunch, followed by tea and a two-hour study period for reading and asking questions. Sometimes in the evening there were informal gatherings as well, with a goblet of wine, on the flat roof of the génadɛma.

May handled the morning class, assisted by Lébé, Mitruiluku, or Kwétɛru. It was a shock for the students to be taught by a woman, an even bigger shock to be taught by a pregnant woman even after Amos introduced his wife and attended the first class; it took them two weeks to adjust, at which point May was finding it harder and harder to teach the course. The class focused on reading and writing, and soon expanded to basic skills like taking notes, outlining subjects, and alphabetizing.

The afternoon class was rotated among Chris, Amos, Lua, Thornton, and Behruz, and focused on numbers, science, and engineering. Chris taught addition, subtraction, multiplication, and division and demonstrated its use with accounting skills. Amos taught geometry through surveying. Behruz did a few simple chemistry experiments and then taught about atoms, molecules, and bonds. Lua showed them things through the microscope and explained about microorganisms, then talked about biological classification. Chris took the students to his farm and amplified Lua's explanations about biological classification by talking about selective breeding of crops and the needs of plants for water and fertilizer. The late afternoon informal gathering had at least one faculty from each to take questions. The students divided into two groups and asked questions about either subject.

Since the students were men between 18 and 30, and all the ones from Ora had aristocratic blood—in fact they were all relatives of the lord—they felt free to ask questions. They were tolerant of the questions of those of lesser rank, and after a few weeks grew used to them. Chris and the others often repeated the importance of allowing, even encouraging questions, and the students gradually got used to the idea.

The biggest problem was John Miller, who was furious about the students from Ora. “They’re just here to get as much of our knowledge as possible!” he said to Chris after the inaugural dinner.

“Of course; this is a school. It teaches knowledge,” replied Chris matter-of-factly.

“But Mennea, it’s okay to teach them the new alphabet, and I don’t care if you teach them double-entry accounting, but don’t give them all our science and engineering, for God’s sake!”

“John, they’ll never have all of our science. A few months of classes will leave a big gap. Besides, we’re constantly getting more from the web. And I’ve already told you my philosophy of sharing—”

“Yes, I know. I also know that someone in Ora has already tried to copy our cast iron stove. I heard it from one of Awsé’s cousins, who is a caravan worker.”

“You can expect that, but you can’t export iron stoves there anyway.”

“Once we have steam wagons we can!”

“Then make yours better than theirs. Or let them make iron stoves and you make something else. Your third option is to try to create a monopoly in just about everything, get filthy rich, generate lots of jealousy, and have it taken from you.”

“That’s what you say! I can handle these people.”

“Well, what can I say to you? They have to learn science some time, John. Why shouldn’t they start now?”

“Just don’t show them my foundry.”

“Fine, we won’t,” replied Chris, wondering how he would manage that.

All through the first month of the course Mɛlwika planted their wheat, barley, and vegetables. The Mennea fields had to be planted as well, which kept Chris, Thornton, and Behruz busy when they weren't teaching classes. They used the rovers twenty hours a day, devoting hours to the Miller fields in return for Miller labor planting their crops and helping to harvest them later. They worked the rovers so hard they needed emergency spare parts from the aliens again to repair them. But even the Millers were hiring people to serve as farmhands because the iron works was receiving so many orders they couldn't keep up. Often the rovers were being driven by army engineers learning how to use them. Chris even hired a reliable young man from Mɛddoakwés named Krédu to come to Mɛlwika, learn how to drive the rovers, and learn how to maintain them; it was becoming harder and harder for Amos and Thornton to do it.

Bolérɛnménu, "the month of greening," ended and Dhébɛlménu, "the month of planting," began, ironically as the planting ended; the names of the months reflected a colder climate. The new month marked the beginning of the upgrading of the wɛgna from the capital to Mɛlwika, work involving one rover to bulldoze and haul gravel while two dozen men shoveled gravel from trailers onto the road. The rover plowed the start of a drainage ditch along the shoulders of the road as well, which the men dug out by hand, throwing the dirt on the road to raise the surface and then graveling the result. They were able to move forward about two hundred meters a day; the road, including bends, was sixteen kilometers long. But as the road improved the trip to Mɛddoakwés grew noticeably shorter and less bumpy. When it was finished one rover would be devoted to widening and smoothing the rodha to the Spine.

The new month also brought an intensification of May's labor pains, and on the second day of Dhébɛlménu she headed for Lua's clinic to have her baby. Everything at the génadɛma ground to halt that day while everyone waited for the news. Amos was allowed into the delivery room in spite of Eryan taboos and saw his baby daughter arrive a bit before midnight. He came to the génadɛma to announce the result.

"My friends, my wife and I have just had a daughter," he said. "We have named her Bahiyeh, or in Eryani, Skandé. She and her mother are fine, praise be to Esto."

"Congratulations!" exclaimed Mitrubbaru, on behalf of the students, who were gathered on the rooftop. "We join in your joy. We commiserate with you, also, that it was not a boy."

"No, no; I am not concerned about that. My wife and I wanted a boy or a girl equally. We are both very happy we have had a girl."

"May she have a long and healthy life," exclaimed one student.

"And bear many sons," added another.

"Will you teach her to read and write?" asked a third.

"Of course, when the time comes. Perhaps she will be a faculty here at the génadɛma and will be teaching your sons and daughters!"

They all laughed about that. "She will have to marry an Eryanu man; that could be interesting," said Mitrubbaru. "But perhaps the Eryanu men will be different, then."

Amos raised a bag. "Here my friends, are small gifts to all of you, to remember this night." He reached in and pulled out small ball-shaped pastries made of flour, almond slices, and honey.

“Swadboli! Thank you!” said Mitrubbaru, recognizing the traditional Eryan pastry. “We’d give you wine, but we know you don’t drink.”

“Your daughter’s name Bahié; is it related to the word Bahá’í?” asked someone.

“Yes, it is a different form of the same word,” replied Amos. “Baha means glorious; Bahié is the feminine form of the same word. Bahá’u’lláh’s eldest daughter was called Bahiyyih.”

“Then it is a very precious name, to you,” said Mitrubbaru respectfully. “Will this delay the first test of the steam wagon?”

Amos shook his head. “No. I’m not going to do much on the project for the next week, but the men in the iron works can do most of the work without me. If I go over there two or three times a day for a half hour or so, it will be enough.”

The work on the steam wagon did indeed continue. A mere week later everyone in the village was invited to see the first big test. The freight wagon that was used for the test was designed specially by the Mɛddoakwés wagonwrights for the Mɛlwika Ironworks, but it had to be modified in Mɛlwika by adding steel reinforcements, brakes, and a steering wheel. The wagon was 2.5 meters wide and nine meters long; quite large. It had three axles, two of which were in the front and two meters apart. The wagon ran on cleated iron wheels; there was no rubber to make pneumatic tires. Between the two axles the ironworkers installed the firebox with the boiler over it; the engine was 1.3 meters wide and high. In front of it was a wide bench where the driver and several workers could sit, with a canvas awning to shield them from sunlight and rain. On the left side there was a steering wheel that dropped straight down to the front axle and brakes that squeezed

both front axles when you stepped on the brake pedal. Steam came out the top of the boiler and down an iron channel along the side of the firebox to two cylinders. One powered the front axle and the other powered the middle axle. Either one or both could be engaged, depending on the speed and power needed. The stoker could walk past the engine on either side of it and go to its rear to throw wood into the firebox. On top of the engine was a smokestack and a steam whistle. A wooden box for coal 1.3 meters long, one wide, and 1.5 high straddled the wagon behind the engine. Beyond that was a very large cargo area; the wagon had wooden sides 1.5 meters high and the front half of the cargo area had a canvas roof and could accommodate seats. A narrow passageway connected the cargo area to the drivers' area on both sides of the coal storage box, so the crew and passengers could converse.

All morning people stopped by to watch the last minute work being done. Miller shooed them away with the promise of "twelve bells! Come back at twelve bells!" That spread the word that the testing would be at noon, so as the ironworks' bell rang twelve times, several hundred gathered. Miller watched with irritation as the students from Ora joined the crowd surrounding the steam wagon. Yimu and Mitru were busy keeping people back while Amos tinkered and Manu shoveled coal to make the fire hotter.

Finally Amos beckoned Mitru to come up on the front seat. The young man scrambled up and pulled the chord on the steam whistle. The crowd cheered in response to the toot. Then Mitru sat behind the steering wheel and Amos began to turn a valve to allow steam into the cylinder driving the middle axle. It was the only cylinder they had set up; the other one would take another month of work. The amount of steam pressure controlled their speed; steam engines didn't need gears or clutches.

Steam pressure began to enter the cylinder, but it was some time before the pressure was high enough to move the wagon at all. Everyone cheered as it began to creep forward, then move a bit faster as the volume of steam increased even more.

“Mitru, steer, steer!” exclaimed Amos. The wagon started to head right for the iron works. Mitru slammed on the brakes and the wagon suddenly stopped, almost throwing Amos off it. Fortunately there was a low wall in front of him that he hit and managed to grab.

“Turn the wheel!” exclaimed Amos, a bit exasperated.

“I can’t!”

“No?” Amos reached over and began to turn it. When he used all his might he was able to turn it slowly.

“Hum, that’s a problem.” Together they pulled and managed to get the wheel to turn enough. Mitru let off the brakes and the wagon lurched forward and to the left, heading slowly for the river gate.

Mitru managed to steer this time, though he barely got the 2.5-meter wagon out through the three-meter gate without scraping anything. Outside the road made a sharp left turn and he did not manage to make it. Instead of following the road as it ramped down the slope to the river, the wagon rolled straight down the slope, and suddenly gained a lot of speed.

“Keep cool, it’s alright!” said Amos, who reached over to help steer.

“This is not like a rover,” said Mitru grimly, as he fought to keep the steam wagon under control at six kilometers per hour.

“I see!” agreed Amos.

They barely managed to turn the wagon at the bottom of the slope and keep it out of the rushing river. The crowd poured out the gate as well to see where the steam wagon was going. Many ran after the wagon to watch, and it was easy to keep up with it; its maximum speed was a fast walking pace. Many cheered to watch the steam wagon work. They were oblivious to Amos and Mitru's struggle to keep the machine under control.

They managed to get the wagon back on the road when the latter reached the bottom of the slope. But in a hundred paces the road bent sharply right to ford the creek, and that was a challenge greater than they could manage. Their steering took the wagon to the left. It lurched down the bank of the river and into its shallow waters with a big splash, then kept on going across the river. The iron cleats got excellent traction on the gravel riverbed, there was a strong head of steam driving it, and the machine weighed several tons; it behaved more like a tank than a truck. When it reached the far side of the river it lurched up the bank with some difficulty and kept on going.

By then Amos and Mitru were figuring out how to work together to steer the behemoth. They steered back on the road in a dozen meters, which was just as well because the irrigation ditch was deeper and muddier than the river, and probably would have stopped the steam wagon; or worse, broken it. But the road took them smoothly over it. They managed to stay on the road from then on, executing a wide but serviceable ninety-degree turn when the road bent west, and then headed for Nénaslua.

"I bet they can't stop!" said Chris, watching the steam wagon heading into the distance.

"Why not?" asked Thornton.

“Well, they can always turn off the steam, but they can’t back up, and the fields are hedging in the road, so there’s no place to make a circle.”

“Oh, that’s true,” agreed Thornton. They stood there watching the steam wagon shrink in size as it moved farther and farther down the road. Finally it reached a spot where there was a vacant field on the right side, half way to the next village. It executed a wide, slow circle and headed back up the road.

Mitru and Amos did not attempt to bring it back inside the gate; they stopped at the bottom of the slope and turned off the steam power. Everyone cheered and ran over; the Eryanɛ were thrilled by the sight of their own steam-powered machine. Chris and Thornton hurried over as Amos was climbing down.

“We were nearly thrown forward off the wagon three times,” said Amos, obviously shaken. “Very dangerous, very dangerous!”

“Can you improve the steering?” asked Thornton.

“We have to!”

“Fortunately the roads are pretty straight between villages, and we can make them straighter when we improve them,” said Chris.

“But if anyone runs out in front of one of these things, it’ll be like running out in front of a train. It won’t stop,” said Amos. “These things have so much traction and weight, the steering wheel simply doesn’t turn. We’ll have to add some gears to the steering to make it practical!”

“More delays,” grumbled Miller, who had just arrived with Yimu and overheard Amos’ last comment.

“It’s that, or these things will crack up on every trip. I doubt you’d sell many like that.” Amos spoke with some force; he clearly was frustrated by the experience.

“You have accomplished something very great today,” said Chris. “It is truly amazing. In a few months, distances on this world will shrink incredibly.”

“If we improve them more, we can sell them,” said Yimu. “That shouldn’t be a problem.”

“But then we’ll sell fewer!” replied Miller, glaring at his oldest son. “We want to make more money, not less.”

“And hold onto it,” added Yimu, sharply.

Miller’s face grew red. “You’re not going to take the reins from your old man’s hands yet! Forget that!”

There was an awkward silence. Yimu, Manu, and Tritu had been increasingly angered by their father’s demanding ways in the last few months; this was another sign of it. Chris smiled. “The first models will be expensive because they’re new, but with every steam wagon you build, they will get better and cheaper. That’s the law of economics. The iron works has done a great job.”

Thornton wandered away, not wanting to hear any more arguing. Mitrubbaru and a cluster of students were nearby, so he walked to them. “A great day,” he said.

“Yes, a great day!” agreed Mitrubbaru. “Modern machines, built by the Eryanɛ! It shows the power of this new knowledge!”

“I think today’s demonstration proved to all of us that we must take the science and technology courses that start next week,” added Stauru, another student from Ora. “What do we need the hymns of Widumaj for? We can get them at home later!”

“I think they are more important than that,” replied Thornton. “Knowledge without the wisdom to use it correctly is very dangerous; it can cause great harm. Now the Eryanɛ can build machines; but the Eryanɛ must use their wisdom to know how to use the machines wisely.”

“Sometimes I think you Gɛdhémus place more importance on Widumaj than we do,” grumbled Stauru.

“Sometimes one doesn’t know how great one’s truths are, and only others can see it,” quipped Thornton.

“Regardless, Dhoru, we have to take some time off from all these classes,” said Mitrubbaru. “Some of us were talking, while we waited. There’s got to be some great hunting in the mountains north of here. We can get horses from the queen’s stable. Why not take off two days and head up into the mountains to hunt deer or boar? It’s what we need!”

“Right now the class schedule is pretty full. If you want to study science, we can’t take much time to hunt. On Gɛdhéma adults study science for eight years before they can teach it. There’s a lot to learn.”

“I would like to learn how to make these wagons,” said a student.

“And we’re not even teaching that. Those skills are being discovered in the iron works, and it isn’t part of the génadɛma.”

“And Miller will never share them!” added Mitrubbaru with a laugh. “Seriously, we don’t need more on Widumaj. And without May teaching grammar, it won’t be very interesting, even if my brother is replacing her. She did an excellent job of making a boring subject interesting.”

"She's planning to start classes next week, though. And not on grammar; she said you don't need more of that. You don't need more on the hymns, either; we used them to teach you the letters, and now you know them fine. She's planning to teach you *our* letters, because it will be easier to teach science with them. Amos and Behruz need your help to figure out how to express our science in your letters. We use the letters as symbols, you see, to represent ideas. It is very difficult to translate everything into Eryani, and we need your help to do it."

Mitrubbaru looked at the others. "That would be good. Can she teach us something about life on Gɛdhéma? We would like to know about the customs and life there."

"Yes, that's what she wants to do."

"But she has a baby! How can she teach a class?" asked Stauru.

"She'll teach just one hour every day. That won't be difficult for Bahiyé."

"But returning to the question about a hunt, I think we should ask your father; he will decide. We need to get out! I'm getting fat."

"I have an idea about that. This afternoon I'll teach you something; I'll explain then."

"This afternoon? You mean after the class on agriculture? That's our time to relax!" said Stauru.

"This is fun; it will be relaxing," replied Thornton.

Thornton had to skip the class to get ready. He had wanted to be able to play soccer for the last year, but the town never had enough young people available to do so. The students at the génadɛma, however, were perfect; young, strong, and full of energy.

Jordan had a ball they could use. It wasn't a soccer ball, but it was roughly the right size, and it would kick fine. There was a field outside the Péskakwésgluba Gate that was big enough for a game, but it had no goals and was covered with animal dung, so Thornton took a shovel with him to clean it up and stand up some posts, to which he tied a crossbar more or less at regulation height. He had converted a cow pasture into a soccer field.

Explaining the basic rules took a surprisingly long time because the Eryanɛ had no concept of team sports. They had occasional athletic contests, but they were between individuals. The rules took time, too. Finally, on a world without clocks, it was hard to play a game that involved timed quarters. Fortunately they were within earshot of the factory bell and could hear it chime out the quarter hours.

In spite of the problems, once the students from Ora started to play they did well. When the sun set they didn't want to stop, and Skanda's light could have allowed the game to continue a long time. But the winning side decided to follow the rule and end the game while they were ahead. The growing crowd of spectators—farmers returning from their fields stopped to watch, fascinated—applauded the victorious team.

"It is not the same as hunting, but I hope you enjoyed it," Thornton said to Mitrubbaru.

"Yes, very much! What a simple set of ideas. I'm surprised we never did it before," he replied. "Is this a Bahá'í idea?"

Thornton was surprised by that. “No, soccer has nothing to do with the Bahá’í Faith. It is something people do to have some fun together.”

“Not just Bahá’ís?”

“Of course not. Most of the people who play it are not Bahá’ís.”

“I see.”

“Do Bahá’ís have teachings about playing games?” asked Estoiwiku, a young man from Ora who asked a lot of questions about Bahá’í ideas.

“Not about soccer. We are not supposed to gamble, or to spend our entire life playing games, but they are allowed as a way to enjoy yourself,” replied Thornton. Estoiwiku thought about the answer and nodded.

Thornton picked up Jordan’s ball from several students who were still kicking it around and headed home. The crowd of farmers and iron workers who had been watching the game was slowly dissolving; some of them wanted to learn the game, too. Thornton suddenly realized that Mɛlwika, even without the students, now had plenty of men to play soccer. That had not been true several months ago.

He walked through the gate and headed straight home. The family was about to sit down for supper. He had just enough time to wash up quickly before joining them. Kwétɛru looked unhappy. “I wanted to play, too, but I knew they’d be uncomfortable,” he said to Thornton angrily.

“They’re getting better, though. I haven’t heard anyone tell any bad jokes about Sumis in two weeks. Mitrubbaru really respects you, I think.”

“Perhaps he does, but not all of the others.”

“Kwétɛru, have some patience.”

“Patience!” He laughed. “And don’t call me Kwétɛru any more. As of tomorrow, I am Rébu.”

“Rébu?”

“Yes. It means the same thing, but is Sumi.”

“Has your family ever called you Rébu?”

“What do you mean? Yes, of course, they have!”

“I ask because I’ve never heard it before.”

“We only used it privately; it would be frowned on in public. But as of today that has changed.”

“Alright. Very good, Rébu.” Thornton emphasized the word strongly.

Rébu followed him to the dinner table, but did not stay. He loaded his plate with a heap of rice with vegetables and meat, then headed back to his room and Thornton’s computer. Thornton sat, watching him go.

“What’s got into him?” asked Chris.

“He’s mad about the way the students would have treated him, if he had joined in the soccer game today,” explained Thornton.

“What happened?” asked Liz.

“Nothing, I think. He ‘knew’ something would happen. That’s the problem. And now he wants to be called Rébu, which is Sumi for Kwétɛru.”

“That’s not good,” said Chris. “Our friend has gone from being ashamed of being Sumi to being excessively proud of it, in a matter of months.”

“The trip to Kɛrda did it,” said Thornton. “He saw almost the entire world and realized how sophisticated and ancient Sumi culture was. And in the last few months he’s

gotten able to read English pretty well, so he surfs the web pretty extensively and has discovered nationalism."

"Just what we need," said Liz.

"In many ways this is our fault," said Chris. "Our attitude of respect for all people and all cultures implies pride in his Sumi heritage. But the pendulum has swung too far too fast. Thornton, how can we bring it back toward the middle?"

"I don't know. Maybe you should talk to him, dad. He respects you more than anyone."

"I'll try," said Chris, doubtfully.

"The things he looks at on the web worry me very much," said Lébé. "Many things I can't read! They litter his room. Descriptions of ancient Earth weapons, for example. Stories of revolutions and heroes. I don't know when he ever sleeps."

Chris raised both eyebrows. "This has gone too far, then. I'll talk to him tomorrow. I wonder whether we should have ever taught him how to surf the web."

"It's too late now," said Thornton.

"How did the soccer game go?" asked May. "I was up on the roof and saw a little of it. I can picture a day in just a year or so when the Génadɛma Menneai soccer team goes to Ora to play the Génadɛma Mitrui team, and vice versa."

"We'll have a few teams right here in town, judging from the interest I saw!" replied Thornton. "Did you see how interested the farmers were, when they came home? They were fascinated. They'll be asking to learn in a matter of a few days."

"I wish you had asked me first, before teaching the game," said Chris, scolding mildly. "I wouldn't have said no, but we need to keep united and agree on what culture

and knowledge we're spreading, and when. Subtle things like team sports can have a huge impact on a culture that has never seen such a thing."

"I'm sorry, dad. You're right. I didn't think soccer would fall in the same category as classroom stuff."

"Oh, it does," replied Chris.

"Soccer isn't our big contribution of the day, anyway; the steam wagon is," replied Lua. "Everyone was incredibly moved by it. Not just thrilled; inspired. At least, that's what I saw."

"Yes, it's true!" agreed Chris. "Throughout the agriculture class that's all the students wanted to talk about, and not just how one would make such a machine; rather, its impact on their lives."

"They all want a ride back to Ora using it," said Amos. "I'm not sure I can work out the bugs that fast, though. We can fix the steering and brakes by adding more leverage to the systems. Even then, I think we need to straighten the road to Ora; it'll make trains of three or four trailers much easier to handle."

"Regardless, the steam wagon is a symbol of a new day on Éra," commented Liz. "It's a symbol of this new word `progress'. It's going to be about a whole new type of hope."

"One that can't be fully fulfilled," added Chris.

Two days later Chris and May were in the main classroom teaching about genetics when they were surprised to see Wɛrétrakɛstɛr standing in the doorway. Chris smiled. The students saw him and several immediately stood; the widu was highly respected.

“I’m sorry, it is not my intention to interrupt your class,” said Wɛrétrakɛstɛr. He turned to leave.

“No, stay. Please come in, Wɛrétrakɛstɛr,” replied Chris. The prophet-philosopher hesitated a moment, then nodded and sat in the back of the class.

May was relatively close to the beginning of the story she was telling of Gregor Johann Mendel and his study of peas. It was a simple story to tell about how genetics worked, and she had handouts illustrating it that the students already had in front of them. She backed up slightly and Wɛrétrakɛstɛr settled into a chair to listen as well, fascinated. When she finished the students bombarded her with questions and he seemed even more pleased.

Then the time came for a break, before Chris took over to talk about agriculture. He immediately walked to the widu. “We are honored by your presence, Wɛrétrakɛstɛr. What brings you to our génadɛma?”

“A pleasant walk to visit my cousin; she and I talked all morning. A chance to see your new building and the classes in full operation. I am very impressed by both. And a request from the queen to me, personally.”

“A request? How so?”

Wɛrétrakɛstɛr smiled. “First, show me around! Then offer me some tea.”

“Alright.” Chris looked at May, who saw his situation and nodded. She’d continue the class; he didn’t have to worry about that. He led Wɛrétrakɛstɛr out into the hallway to see the other large classroom and the dorm rooms on that floor, then upstairs to see the four smaller classrooms and the sixteen dorm rooms up there, then to the basement to see the bath—it functioned as a public bath in the afternoon, so several townspeople were

there—the kitchen, dining hall, and offices. One was Chris's office. He brought a pot of tea and two glasses that May had asked a student to prepare while they toured the building.

"Very impressive," said Wɛrétrakɛstɛr. "You can sleep 32 students and the classes can accommodate how many? About 100?"

"Yes, 100 or 120 at once. It should be big enough for a few years, at least. Then we may need a bigger place."

"Perhaps. I like the chairs with little flat boards in front of them for writing. Very comfortable and practical."

"Thank you. We just got them two weeks ago. Before that, our students were sitting on the floor."

"A time-honored method of running a class," said Wɛrétrakɛstɛr. "And how long are the students here?"

"Three months. We just finished the first month; well, seven weeks, actually. That was an introductory period when we taught the new writing system, multiplication, division, fractions, and a few other basics. We have eleven weeks left, so they are divided into two five-week segments, each with two classes in the morning and two in the afternoon. We require the students to take three of the four, but they usually take all four. The eight courses will each be distinct and we will test the students at the end to see how much they learned. They'll go home with little pieces of paper showing their picture and listing all the subjects they studied."

"Very good. Why five weeks, instead of six?"

"Scheduling. Next time we'll be better prepared and will teach six-week classes. Each class meets six hours a week, for a total of 30 hours. We would prefer to have 36 hours because there is no time for homework in this schedule and there is so much to learn."

"Are you teaching any English?"

"No, we're teaching everything in Eryani. It's much easier because languages take a long time to master."

"True." Wɛrétrakɛstɛr paused. "But it is what the queen commands."

"That the classes be held in English?"

"No. That I improve my mɛndhadɛma so that it can be a génadɛma as well, and that it teach English or other languages from Éra. Her Majesty is concerned we are completely dependent on your school for all this progress and development." He paused so that Chris would notice he had used the two new words. "She wants us to be able to read the books from Earth that you have."

"Ah. That is important; I agree with Her Majesty. But as you know, there are very few people here who know English. Miller's kids know some, but they can't read it."

"I know. Awsé told me. And I gather that the other Gɛdhémé whose daughter was here in the summer can't help."

"Correct. She was a child when she was brought here, and she spoke Spanish, not English. I'm not sure she could read simple Spanish now. Actually, we should probably help her improve her Spanish."

"Yes. Now that I have seen your building, I think I will remind the Réjé that a proper génadɛma requires a proper building. But what we need is an English teacher."

“An English teacher.” Chris thought. “We can provide you one, of course. By far the best choice would be May. She is trained to teach English to people who do not know it at all.”

“Really? On your world people are trained in that?”

“Oh yes! It’s called English as a second language training and it is a very common training among our friends, because they can travel around our world and it allows them to earn a living. May has a degree in it. Thornton was thinking of getting one. But the question in my mind is, what payment should we arrange?”

“I don’t know,” said Wɛrétrakɛstɛr tentatively, looking at Chris intently. His eyes said things he could not speak: he was asking the génadɛma to give up its monopoly.

“This arrangement has advantages to us. One of my greatest fears right now is the impact that the new knowledge will have on Eryan society and culture. If many others know English, I can’t be blamed.”

“And the council the Queen appointed hasn’t helped much.”

“No, it hasn’t. I’ll tell you, Wɛrétrakɛstɛr, what we need to do is set up two génadɛmas that work together as partners, and when there’s a génadɛma in Ora, it will be a partnership among three. We’re only thirty dɛkɛnt apart; using the rovers, that’s half an hour, and with the steam wagons they’ll be an hour apart. Ora will be an overnight trip. So I suggest we think about an arrangement that can be extended. If your génadɛma wants to pay one of our professors to teach a course, we would pay one of yours the same. We can swap faculty.”

“But right now, your génadɛma has the most faculty.”

"True, but that may not always be the case. Among the twenty students from Ora are some very smart, talented men. The six from Mɛddoakwés include three of your students, and some of them are very talented. When this three-month program ends we can use them to start the courses and the other faculty can supplement."

"I'm not sure the Réjé would want us to create such a partnership with Ora, though, especially teaching English."

"Perhaps I should speak to her about that. If you want my family to teach English, we will want to teach it in Ora, too. And eventually in Néfa and Isurdhuna, and maybe Tripola and Bɛllɛdha. Furthermore, all the schools established by the local lords will be part of a royal educational system, with royal standards, and some royal tax support. Perhaps it's too much to talk about all of that right now, but that's where this will go in three to five years."

Wɛrétrakɛstɛr stared at Chris, wondering what to say. "You ask a lot," he finally said. "If you asked for money, it would be easier to understand."

"I'm sure. Look, Wɛrétrakɛstɛr, I'll put it this way. You want English. We can start a few short classes right away, but in five weeks when we start another series of courses we can start a formal course on English. It'll be 'English 1.' If someone wants to read English reasonably well, they will need through 'English 6.' That's my estimate, anyway; May will know for sure. I suggest you talk to the Réjé about paying for several students to come here and take the class. We can provide transportation; we've already got a rover or a wagon going back and forth to Mɛddoakwés almost every day. If she's upset the Ora students will be taking the class, point out to her they will only get English 1."

“Alright.” He nodded, satisfied. “I think I can explain that to her. We already have six students here; I’ll talk to them about taking the class, and I’ll talk to the Réjé about providing money for three to six more. I will be one of them.”

“Really?”

Wɛrétrakɛstɛr nodded. “Yes. Definitely. I am considered a very educated man, but I am watching my knowledge become obsolete day by day. If I am to serve the queen well I need English. If I am to advise you about how to spread your knowledge, I need English. Yes, yes.” He repeated “yes” twice; the English word, which had already become popular with his students.

“Excellent,” replied Chris. “We will welcome you warmly.”

“You should go to your class, now,” said the prophet. “And if I may, I will sit in the back as well.”

“You are always welcome, Lord Wɛrétrakɛstɛr,” replied Chris. He meant it, too, but could not disguise the worry in his voice.

44.

Wilderness

After his conversation with Wɛrétrakɛstɛr, Chris delivered one of the worst presentations of his life. He was so distracted by the implications of teaching English that he had grave difficulty focusing on methods of natural pest control, which was the subject of the class. The students' questions reflected a poor understanding of the material, too.

He made sure the entire family and teaching staff—Rébu especially—was seated around the table when he told them of his conversation with the widu.

"Miller will be apoplectic," said Thornton.

"It means the end of our monopoly on knowledge," agreed Chris. "But perhaps that's just as well. As I told Wɛrétrakɛstɛr, no one can blame us for the changes that result."

"It's not a complete end to the monopoly because there's only one computer here, and only one place where books can be printed," said Rébu. "And it takes a long time to learn enough English to use it."

"I told Wɛrétrakɛstɛr six courses would be necessary, each six weeks, an hour and a half a day, four days a week."

"With homework," added May. "The students will have to do a lot of reading. That means we'll have to design a lot of readers and print a lot of short books in English."

"I really don't like this," said Liz. "I am a great advocate of educating people in their own language. That's why we decided not to teach in English in the first place."

“But I think this is an essential compliment to an education in Eryani,” said May to her mother. “If you want to become a doctor in Hungary, you go to medical school there in English. It’s not because medical terms don’t exist in Hungarian; Hungarian’s quite an advanced language. But Hungarian medical texts can’t be as modern and diverse as English-language texts because the market is smaller. And if a Hungarian doctor wants to keep up with the latest research he has to read it in English because no one can afford to translate it all. This world will be hard pressed to catch up to Hungary. So I think we have to go for a two-pronged approach, eventually; an Eryani education and an English education.”

“As long as we have access to the web, anyway,” said Thornton. “If the aliens aren’t willing to fix my computer when it breaks, then our access will be ended and we might as well translate everything we have into Eryani.”

“This network of schools you talked about,” said Rébu. “How will it be established? A lord will decide to establish one?”

“I suppose. We now know we will have three. I think it would be very easy to start one at Isurdhuna; think of all the people we met who would support it.”

“In Anartu, also,” said Rébu.

“I’m sure the Lord there will be interested, but I doubt the Réjé would be enthusiastic.”

“What right would she have to object to knowledge?” asked Rébu. His reference to “rights” surprised Chris.

“At the moment she has the right, though perhaps she shouldn’t,” agreed Chris.

“I don’t know how we can standardize education when there’s still so little to standardize,” said Behruz, shaking his head. “We need to start with the six year olds and work our way to graduate school. Right now there are no students with the right training to start college, let alone anything more. And this is a world where the average person lives to be maybe forty at most, so no one wants to be in school after they are nineteen or twenty.”

“No one said it would be easy,” said Chris. “We have to pursue two tracks at once; one, the development of an educational system from birth; the other, education of adults and teenagers.”

“And we have to improve life expectancy, so people will want to stay in school longer,” added Lua.

“Let’s focus on next month,” said Chris. “May, if we run an English class, what help do you need?”

“I’ll need help to find texts on the web and print them. I suppose we want texts that will reinforce the other subjects.”

“The sooner we teach the Latin alphabet, the better,” added Behruz. “It would be much easier to teach chemistry if I can use standard symbols, instead of having to invent Eryani ones and remembering what ones I have invented.”

“We can teach the alphabet this week or next week,” replied May. “That’s easy. We can really start the English class this week.”

“Not systematically,” replied Chris. “Wɛrétrakɛstɛr has to find a few students in Mɛddoakwés and get them approved by the Réjé. He plans to be one of them.”

“Really?” asked Liz, surprised.

"Yes. In fact, he said 'yes' twice to me when I expressed surprise!"

"Wow!" said Thornton, and he looked at Lébé, who smiled back.

"Then we do have to get started, to plan this systematically," said Amos.

They began systematic planning to teach English during the school's third month of full-time operation. The result was a smooth start. The classroom was bulging; the Réjé agreed to pay for six tuitions, but a few wealthy families signed up a child and paid privately. The result was a class of fifty, and a very busy run to Mɛddoakwés four times a week to bring the students to Mɛlwika.

Two days after the class began, the steam wagon was able to make the run to the city for the very first time. It had been taken out every day or two and occasionally had gone all the way to Nénaslua or the coal pit, but the team of workers was constantly making improvements, so it was not normally able to do work. Gears made the steering much easier. The brakes were made stronger, and depressing the brake pedal also closed the steam valve, so the brakes didn't fight the engine. A second piston was added to make acceleration easier. The improvements on the road helped a lot; there was gravel in every rough spot and the road was straightened so the steam wagon could hit its maximum speed of twenty kilometers per hour outside villages. Amos also made sure pairs of signs were set up outside each village so that the driver knew where to slow down; when he passed the first sign he was supposed to start counting and not reach the second sign before the count reached twenty. That guaranteed that the steam wagons went through villages at no more than eight kilometers an hour. The procedure was explained to some of the villagers, too, so they could police the steam wagons.

It took about an hour to get to Mɛddoakwés. Quite a crowd turned out when the steam wagon stopped outside the northeast gate to wait for its passengers and unload cargo: a trailer loaded with lumber from the Mɛlwika sawmill. The guards at the gate were authorized to watch over cargo until the merchant came out of town to claim it. Then the passengers climbed into the passenger compartment and with a toot of its whistle—to warn bystanders to step back—the steam wagon headed back to Mɛlwika. Everyone applauded.

Two days later General Roktekɛstɛr rode the wagon to Mɛlwika to find John Miller. The Australian was in the foundry watching the work on a new iron and steel hearth. The General was impressed. “How will you ever sell that much steel?”

Miller spun around, startled. “General! I didn’t know you were here. Welcome to my town and to my works.”

“Thank you, Lord Miller. Isn’t this hearth twice as large as the one you have?”

“No, lord General, it is four times as large. Steam wagons will bring the ore to a place uphill where it will be unloaded. When we need to charge the hearth, the ore and coal will roll right down into the top. Waterpower will run the bellows; otherwise I would need five or six men working constantly all day to push in the air.”

“You have plans for this place, Miller.” Roktɛkɛstɛr shook his head. “How can you afford to build it?”

“I have the money myself, from the iron stoves, coal, lumber, and flour I sell.”

“It is an impressive sum of money, I’m sure.”

Miller sensed that the General wanted something. “Shall we sit and have tea, General?”

“That would be most welcome.”

Miller led Roktekɛstɛr back to his house. Awsé always had hot water and poured some tea.

“The steam wagon is truly amazing,” the general began. “I never would have thought we could make such machines of wood and iron, and tame the power of fire to do work for us. Fire is so wild; it is like something with a life of its own. And now it is our slave.”

“Iron, wood, fire, and water; they are such basic things, and powerful when combined correctly.”

“Yes. What are your plans for manufacturing more steam wagons?”

“We’ve already started building a second steam wagon and we’ve ordered a third wagon from the wrights in Mɛddoakwés. Many merchants want one, as you can imagine, but the price is very, very high.”

“How high?”

Miller looked at Roktɛkɛstɛr right in the eyes. “Thirty lɛdhay.”

“Thirty?” The general was surprised; it was the total annual income of eight peasant families.

“That’s how much they cost to make. I have a team of twenty men working on each one. When we get efficient I doubt we can make more than one a month. Right now it takes about two months to make one work, and it still doesn’t work well; it breaks down a lot. They are expensive.”

“How will merchants make money off of them?” said Roktɛkɛstɛr, surprised.

“Think of it this way. If you want to go to Ora right now, the caravan takes six days. It’s very expensive to move anything from here to there; the camels and horses must eat. But a steam wagon can leave here at sunset and will get to Ora the next morning, and it is not tired; it can turn around and come back just as fast. A merchant can charge someone six dhanay for the ride and they will be grateful to get to Ora for a quarter the cost and a sixth the time. If you carry twenty people, that’s 120 dhanay; almost one lɛdhay. The steam wagon can pay for itself in a few months.”

“I understand the calculation. Lord Miller, the army wants to be one of your first customers. The Réjé will use the steam wagon on her trips, and in between the army will use it to move soldiers and taxes. And since the tax on items of this sort is 25%, we will accept one of the first four wagons you make in lieu of taxes.”

“I see. I do not recommend that you take the first or second one, General, because they will break down a lot. We’re still figuring out how to make them.”

“Fine. The third one, then?”

Miller shrugged. “Suit yourself. You’ll need to have someone trained to drive it; it is not easy.”

“This is a new day; everything requires training.” Roktɛkɛstɛr sipped his tea. “Are you still planning to raise your dam?”

“Yes, once the first harvest comes in. Not everyone is planning to make a second planting, so we’ll be able to hire workers then.”

“And you’re planning to use all the waterpower too, right?”

“I think very soon we’ll be able to install turbines. Amos has been working on it hard. He says we’ll get up to a thousand horsepower.”

“Amazing. We can make water our slave, as well as fire.”

“Even more amazing: we can run copper wires to Mɛddoakwés and send the horsepower there, over the wires. But that’s a few years away.”

“That is amazing.” Roktɛkɛstɛr shook his head. “It’s good to do business with you, Lord Miller. Now I have to talk to honored Mennea; I have business with him, too.”

“It is always an honor to see you, General.” Miller tried very hard to sound hospitable.

The General smiled. “It is a pleasure to see you also, Lord Miller.”Roktekɛstɛr stood and walked out of the Miller household. He headed for the génadɛma and down the stairs to the basement, where Mennea had his office. Chris was there, preparing for class.

“Good day, honored Mennea.”

Chris looked up. “Good day, General Roktɛkɛstɛr! Come in! How can I help you!” He stood up and the two of them shook hands.

“I hope the road to Mɛddoakwés has proved adequate for the steam wagon?”

“I don’t know, I haven’t ridden on it. But I’ve heard it’s straight and smooth.”

“Yes, it is; I rode on it this morning.”

“Good. Would you like some tea?”

“Thank you, but I just had a big cup. The army needs your help, honored Mennea. We have now finished the improved road to Mɛddoakwés and have improved ten dɛkɛnt of the road to Ora as well. But it is now the time to improve the road to the Spine. Our surveyors can survey small areas, but still cannot survey long distances; nor can they make maps. We need the expertise that Amos and Thornton have to produce a high quality map to the Spine. And we need them soon.”

“Soon? Right now they’re teaching classes every day, and are scheduled to do it for another month.”

Roktɛkɛstɛr shook his head. “We can’t wait a month. We need to start on the road right away, and we need to start on a map right away. We would also like Amos’s earth science abilities to be used along the road. If we can find useful minerals, the road will be even more important.”

“But I still don’t know what to do about the classes. Amos and Thornton teach almost every day.”

Roktɛkɛstɛr shrugged. “Rearrange the classes.”

Chris thought. “What about security? I don’t want us to have trouble from the Tutanɛs.”

“There won’t be any trouble. You can’t encounter any during the first half of the trip because they have moved up into the mountains for the summer.”

“Were you planning to send some students with us, so they can learn? Your engineering corps has several men with some experience already.”

“I’ll send them along, and a few others. And I can send some troops; maybe twenty?”

“That would help.” Chris considered. “The soonest we could leave would be next Primdiu.”

“That long?”

“That’s best. I’d rather go for a full week, beginning to end. It will disrupt classes the least.”

“I see.” Roktɛkɛstɛr thought about it. “Alright, that’s fine. They can give us six days, then?”

“Yes. Seven, really; we have no classes on Primdiu. We can leave on the first Primdiu and return on the second one. We’ll take both rovers.”

“I thought so. And their trailers.” He stood. “This is excellent. Her Majesty will be very pleased, honored Mennea.”

“Excellent. I assume the school can keep a copy of everything we write up?”

“Yes, as always.”

“How are the plans for more dams going?”

Roktɛkɛstɛr smiled; it was one of his favorite topics. “We’ve surveyed three sites in the Pɛnkakwés country and we want to start one dam in a month. We’re hoping it will catch some summer rain. The dam on the Dwobrébakwés has done well; it has a substantial amount of water in it. The Gɛdhakwés dam won’t be built this year because a widu in a village there had a dream that Esto was opposed. We got two widus to disagree, but the local people trust their widu, so they wouldn’t work on it.”

“Maybe they need a big flood to realize the situation.”

“Maybe Esto will send them one, too. But my cousins in the Pɛnkakwés are very enthusiastic; they say they want dams on all five rivers. The problem is that the Queen won’t pay for them. But I think she will agree to no taxes on the surplus crops, wool, and cheese that result. And I think I can find some money in my budget to pay part of the salaries.”

“Good. Development occurs from the combination of new knowledge and financial incentives.”

“You have told me that about ten times, and I am beginning to see what you mean.” Roktɛkɛstɛr extended his hand. “I’ll have my people here on Suksdiu evening.”

“We’ll be ready to go by noon the next day.” They shook hands. Then Roktɛkɛstɛr left.

Chris went to find Thornton and Amos. Amos was busy in the iron works, but Thornton was easy to find. “We have a change in schedule. Roktɛkɛstɛr wants you and Amos to lead a surveying expedition to the Spine all next week.”

“Next week! That’ll mess up everything!”

“I know. They want the route to the Spine surveyed right away, so they can plan the upgrade on the road. They also want a geological survey of the route, and a map.”

“They’ve been saying they want something like that. We should have planned for this.”

“I suppose. How disruptive will this be?”

“Totally. We’ll have to shuffle classes around. Maybe you can teach double for a week, and Amos and I can teach double the week after.”

“I could if I didn’t have too much to do already. I don’t have enough time to prepare properly as it is.”

“The students from Ora will be really jealous; they are almost desperate to get out of town. Riding the steam wagon to Mɛddoakwés once a week is not enough.”

“I’m sure. What if you took them along? It’d be a seven-day geology field trip.”

Thornton’s face lit up. “Yes, that would be good! We’re planning to teach them some surveying and map-making. We’ve already taught them some geology, and the remaining classes would fit into the week.”

"And if we gave a class every morning before we set out, and another one after lunch, we could get at least two hours of real classes in." Chris nodded. "This could work. And we'd all be even safer, of course, if there were fifty men on the trip instead of twenty-five soldiers."

"We would be safe. We could continue the English classes, and if Behruz came along he could teach chemistry."

"That would work. How far is the Spine from here?"

Thornton did a mental calculation. "Well, it's 120 degrees around Éra, so as the crow flies that's about 175 kilometers. With the rovers we could inch along the main road, making trips off of it if we want, and get there in 4 or 5 days. We could drive back in one day."

"Or we could drive straight there and inch back; then we'd know the entire route. Why walk eight kilometers off the road and back if the road has a bend in it?"

"Good point. We could plan our field trips better that way."

Chris smiled. "Then we'll do it."

The week was a busy one for planning. They had to bring a week of food, purchase additional tents, and ask the blacksmith shop to make some rock hammers for them from the hardest steel available. The students were thrilled. The Spine had a reputation for being Éra's most remote and dangerous place, and from Ora it was even more remote because the Long Lake was in the way. They told stories about the barbarism of the Tutanɛ that were hair-raising. May was more interested in their dialect, which sounded to be extremely conservative; closer to Proto-Indo-European than anything else in existence.

It was a warm morning when they set out. The students crowded into one trailer, seated on top of the tents and blankets; the soldiers—mostly road builders—crowded into the other. Amos and Thornton sat with the students while two army men drove.

They drove straight south from Mɛlwika several miles until they reached the Tɛrsakwés, then turned eastward and followed a dirt track—the so-called Royal Road built by Gésɛlékwɛs Maj—paralleling the flood plain. They soon made their first field stop; forty-five minutes of whacking rocks, talking about the streambed, and measuring the position of both the sun and Skanda in the sky. Skanda was already near the horizon. Then they drove on another sixteen kilometers for their second stop.

As they went farther east the land became progressively more arid. The occasional grass disappeared, replaced by brush and cactus, then even few of them. The exception was the floodplain of the Tɛrsakwés, sometimes as much as ten kilometers wide, which had scattered palms and patches of grass when groundwater was close to the surface. The terrain was rolling and steadily rose about six meters per kilometer; they had brought a mercury barometer with them that allowed them to measure atmospheric pressure, and that gave them a rough idea of the altitude. By late morning, pools in the streambed told them that the river had been flowing until very recently.

Skanda dropped below the horizon soon after they left; henceforth they had to measure their latitude using the position of the sun and a watch set on Mɛlwika time. The routine settled down; drive fifteen kilometers, stop for thirty minutes to survey the spot, then drive on. It allowed them to make about fifteen kilometers an hour.

By sunset they were halfway to the Spine at a spot about 600 meters higher than Mɛlwika called Gordha (or Ghorda, as the Mɛghɛndrɛ tribe pronounced it), “the

enclosure." It was well named. The Tɛrsakwés—here carrying a steady flow of water—broke through a high mountain wall, the Gordhamonta, at the edge of the lowlands. It opened into a beautiful bowl of grass about two kilometers across, surrounded on three sides by an ancient ridge of lava and on the fourth side by the mountain wall. The lava ridge stood above the brushy, semiarid plain outside the bowl as well as inside; hence the name. Running along its crest was a stone wall about four feet high to keep the animals in.

The road ran up a gentle spot in the ridge. The two rovers and their trailers stopped at the crest to admire the bowl. Houses of lava rock were built into the surrounding ridge, leaving the grass to grow green; thousands of cattle grazed in the middle. There were also hundreds of tents pitched on the edge of the bowl.

"Wow; what a beautiful spot!" said Thornton. He turned to Gɛlnébɛlu, the chief engineer on the expedition, who also was a driver and was in charge of dealing with the Tutanɛ. "This is their largest settlement, right?"

"Yes. There are about two hundred houses, but as you can see there are a lot of tents here, too, and the houses are often empty. This bowl has the best grass in the area. Did you see the irrigation ditches?" He pointed to two ditches that ran along the edge of the bowl. "They water the grass to keep it growing."

"Yes, I see. Where do we camp?"

"There's a spot set aside for caravans and the army."

"And we'll be safe?"

"Once you, Amos, and I go pay our respects to the chief and his family."

Thornton nodded. They drove over to the spot where the river flowed out of the bowl through a narrow, deep ravine. Several circles of stones marked the spot caravans could camp. They parked the two rovers and their trailers parallel to each other and about five meters apart; just enough space to set up the tents. Then Gɛlnébɛlu, Amos, and Thornton walked across the bowl to the large stone house at the far end, the home of the Potu or chief.

"The Potu's name is Walékwɛs," explained Gɛlnébɛlu, as they walked. "His tribe is the Méghɛndrɛ and it is the most powerful tribe among the Tutanɛs."

"How many tribes are there?" asked Thornton.

"Supposedly there are twelve, but some have split into two over disputes while a few others have really disappeared. The big ones are the Méghɛndrɛs, which have the land from here west to the Dwobɛrgonɛ and east to the mountains; the Kwolonɛs, who occupy most of the central hills; and the Kaitɛrɛs, who occupy the southwestern slopes of the Spine Mountains."

"How big are the Dwobɛrgonɛs? We dealt with them in the spring."

"I remember. They're small. Some of them may be here right now."

"Then maybe we should be careful."

"Maybe."

The chief's house was a square fifteen meters across, stone and two stories high. They passed through a long tunnel-like entrance that brought them into a central courtyard filled with men talking. A wild boar was roasting on a spit along the north side of the court. Clearly, the chief was at home.

He was seated on a chair under a tree at the courtyard's south side. When the three of them entered, everyone turned to see them. Walékwɛs had a long beard and, like everyone else, was dressed in leather. He wore a necklace of bear claws and teeth.

"Chief Walékwɛs, we beg permission to approach," said Gɛlnébɛlu.

"You may approach," he replied, solemnly. Thornton at first heard a string of meaningless syllables, but after he thought about what he heard he figured it out. Tutanɛ was very hard to understand.

They walked forward while everyone in the courtyard silently stared at them. Gɛlnébɛlu stopped about three meters from the chief and kneeled, so Amos and Thornton did the same.

"You may rise," he said, so they did, pleased he received treatment as reverent as the queen. "Gɛlnébɛlu, what brings you here with these two Dhɛghémɛs?" It was the old word for "gɛdhémɛs," found once or twice in the old poems Thornton had heard.

"Honorable chief, we are on our way to Kostɛkhéma on a mission for the queen. With your permission, we will be staying tonight in the camping place for caravans."

"I see. And what sort of mission is this, that involves fifty men, two dhɛghéma machines, and two of them?"

"The Réjé has decreed that the road to Kostɛkhéma be widened, straightened, and improved. We are studying the road, mapping it, and preparing a report, by order of the Réjé herself."

"I see." Walékwɛs pondered. "The queen dishonors the Tutanɛs by working on the road without going through the formality of informing us. Have you brought an official letter?"

“I apologize, chief, but I have not. I will be sure to convey your concern to General Roktɛkɛstɛr, General Aryornu, and Her Majesty herself, if it pleases you.”

“It does not. I will convey my displeasure in person next month, at the court.” He waved. “Why do you need their magic?”

“They bring no magic. They have skills at making maps and the Réjé commanded their assistance.”

Walékwɛs looked at them. “Why do they not speak for themselves?”

Thornton, who was understanding about half the conversation, spoke up. “What Gɛlnébɛlu says is true. Ours is a peaceful expedition to Kostɛkhéma and back, to provide Her Majesty with a map of the road.”

“And of what else?” Walékwɛs obviously understood Thornton perfectly, but made no effort to change his speech to that of the eastern shore.

“The map will show anything we can observe from the road; mountains, rivers, and settlements such as this one.”

“And what if you find useful things, such as metals or gems?”

Thornton was uncertain how to answer, and Gɛlnébɛlu did not step in. “What is your pleasure, my Lord?” he asked.

Walékwɛs laughed. “My pleasure is to be able to exploit that which is in the rocks for my people, and not let others come in and steal them! That’s what the road is all about, after all.”

“My Lord, we can bring you pieces of anything we find and tell you where we found them,” replied Thornton.

That startled Gɛlnébɛlu, which made Walékwɛs smile even more. Some of the men present laughed, a few loudly.

“I would welcome the information, but I do not believe you.”

“Then, my Lord, send a few intelligent young men with us, and we will show them how to find metals and gems.”

Walékwɛs was now startled, as was Gɛlnébɛlu. “What can you show them?”

“We can show them how we make maps. We can tell them what the rocks tell you about the metals and gems, and what metals and gems to look for. Just today we found several examples of metals. The quantity was not enough to work, but our students now know what to look for. Send four young men with us and we will show them, too.”

“They will have to know the speech of the eastern shore,” added Amos.

“Yes, of course.” Walékwɛs pondered. He had enjoyed parrying with Gɛlnébɛlu; it was far less serious than Thornton thought. He had not expected any kind of invitation. “Very well. I will send my son, Albékwu; his friend, Gréagru; and two men from the Dwobɛrghonɛs. They will be ready, with their horses, tomorrow morning.”

“No horses,” said Thornton. “Our machines can travel too far, too fast, for them.”

Walékwɛs raised his eyebrows. “Very well, without horses.”

The four tutanɛs showed up the next morning right after dawn. They brought their horses and looked proud, even fierce. Thornton went out with a reluctant Gɛlnébɛlu to greet them.

“You don’t need the horses,” said Gɛlnébɛlu, after they exchanged greetings. “Our rovɛrs go too fast for them. We can be in Kostɛkhéma by sunset tonight with the rovɛrs. That would kill your horses.”

Albékwu, who seemed to be the leader of the young men, scoffed. “How can you get to Kostɛkhéma in one day! Do you know how far away it is?”

“Yes, of course; I’ve been there,” replied Gɛlnébɛlu. “Gordha is half way from Mɛddoakwés, and we left Mɛddoakwés yesterday morning!”

“That is almost impossible!”

“Trust me.”

“These rovɛrs can go twice as fast as a horse; three times as fast if the land is flat and smooth,” explained Thornton. “And they never tire. They can go that speed all day.”

“What magic are they?”

“You can ride in the front with me, and I’ll show you,” replied Thornton. Gɛlnébɛlu was uncomfortable with the offer; he had been riding in front with Thornton and now would have to ride on the trailer. But the four Tutanɛs accepted with pleasure.

The four of them climbed into the rover and piled their gear there. Thornton turned on the engine and the others began to climb into the back. Albékwu listened to the noise from under the hood. “Is it angry?”

“No; that’s the normal sound. This is a machine, not an animal. It has no eyes, ears, mind, or thoughts. If I start it to go and do not control it, it might hit something and destroy itself. It is like a wagon rolling down a hill with no driver; it will go wherever the hill takes it.”

“Then how do you control it?”

"With this wheel; you'll see. In front is a block of metal we call a *motɛr*. It has eight little caves in it of very exact and uniform size." He made a circle with his fingers to show the diameter of each cylinder, and with his other hand he showed the length. "Each cylinder has a door that can slide up and down it, with a metal rod on the outside to push and pull it in and out.

"The thing that makes the *motɛr* work is that each cave can have a small fire in it. The big door has little doors that can be opened and closed separately. When the big door is all the way down to the bottom of the cave a little door opens and a mixture of fuel and air are pushed in. As the door moves up the cave, the cave fills with the fuel and air. The fuel, by the way, is not like wood; it's a liquid, like cooking oil, but it burns even faster. Have you ever seen cooking oil burn in a fire?"

Albékwu grunted a yes.

"This liquid burns even faster than that; it can all burn up in a heartbeat. Anyway, the door slides up the cave to the top, filling it with the air and fuel; then the little door closes, trapping the air and fuel inside, and the door slides back down the cave, squeezing the air and fuel very tightly. When it is most of the way down and the air and fuel are hot and squeezed, a device that makes a spark in the cave is triggered. The spark makes the fuel and air burn up in a fraction of a heartbeat, and the fire violently pushes the door back to the top of the cave. That push makes the axle and the wheels turn."

Albékwu was skeptical. "How?"

"There are gears. I can draw you a picture, if you'd like. Then the door is opened and it goes back to the bottom of the cave in the open position, pushing the burned air

and fuel out. The door closes and it is ready to pull new air and fuel in, repeating the cycle."

Albékwu seemed utterly baffled. Thornton looked behind; almost everyone was in the wagon. He tooted the horn twice, startling the Tutanɛs. "The rovɛr has a voice; but I make it sound when I push this button." And he did it again. Albékwu reached over to push the button as well, and was satisfied by a long, loud honk. The three men in the back seat leaned over and pushed as well, laughing as they did it.

Everyone had climbed into the trailer by then, so Thornton pushed in the clutch and put the vehicle in gear. He started it forward across the grassy bowl. He pushed a button to lower everyone's windows electrically, which surprised them. He accelerated to about fifteen miles an hour; not too fast for the people in the trailer, but quite an impressive speed for the visitors.

"This would exhaust a horse," agreed Albékwu. "But horses can go faster."

"So can the rovɛr, but not pulling the trailer; I might hit a bump and throw someone out," replied Thornton. He pointed to the speedometer. "You see the needle? When we started it was on the left side. It moves farther to the right, the faster I go. I can push it almost all the way to the right side."

"That would be very fast!" agreed Albékwu, noting it was only a tenth of the way to the right.

"How do I get over the mountain?" Thornton pointed to the ridge in front of them.

"You mean the road to Kostɛkhéma? This way." Albékwu pointed to the right side of the bowl. His hostile or aloof tone was replaced by a more friendly tone. Thornton drove over to a dirt track—it was just a trail—and followed it across the bowl to the

eastern side. With some difficulty he pulled the trailer up the steep slope of the bowl and followed the rocky, bumpy trail to the right, where it rejoined the main road. The latter did not go through the bowl, but around.

"You must stay on the road," observed Albékwu.

"With the trailer, especially. Without a trailer the rovɛr can go over pretty rough ground, but a road is better. This way?" He pointed left, where the road gradually went southwards up the side of the ridge.

"Indeed."

"Have all of you been to Kostɛkhéma?"

"No," said the two Dwobɛrgonu. "It is out of our territory," added Arktinogu ("bearclaw"), the older one.

"But can't anyone take the road to get there?"

"Yes, but why go? It is just a dusty collection of huts in the mountains."

"True," agreed Thornton.

"Besides, no one riding on the road has hunting rights," replied Albékwu. "Unless they are in the land of their tribe, of course. We can hunt here, but they can't."

"They could hunt with you, couldn't they?"

"Of course." Albékwu spoke as if to a child who did not understand the rules of hospitality.

"Now, the Dwobɛrgonɛs own the land from Mɛlwika to close to Ghorda, right?"

"The boundary between their land and that of the Méghɛndrɛs is the Ghwérowakwés; you'd say Khérowakwés. It's about a half day's walk west of Ghorda."

The Tutanɛs had been speaking in the accent of the eastern shore, mostly, and in this case they even translated for him. He wasn't sure which creek was the "Garlicwater" but nodded. "We rode over it on the way here."

"Of course."

"Of course, the western boundary of our territory has now been moved," observed Arktinogu pointedly.

"Yes. The army did that, not us. We wanted to irrigate the Péskakwés bowl so the grass would be greener for you. Perhaps you should ride back with us to Mɛlwika, or most of the way to Mɛlwika. Maybe we will find ores along the road that your people can use."

"Ores?"

"Rocks that have metal in them. Half of the men with us are from the western shore and we're teaching them how to look for ores. You'll see."

He turned the rover around a corner; a switchback. The road wasn't well made, but it was good enough for the rover and trailer.

"Why are you teaching them about finding ores? Is this magic from Gɛdhéma?"

"Not magic; just knowledge. We have started a school in Mɛlwika to teach our knowledge to anyone who wants to learn it. It is better for everyone on this world if they can find ores, grow more food on their fields, give their children better medicines, and use machines to do work for them. Life is better and everyone is more prosperous. We want to make Éra a better place for everyone."

"But if Wéranu made this as a place where we suffer, why make it better?" asked Gréagru.

Thornton wasn't sure what to say to that, at first. He was surprised by the reference to the old father god instead of Esto; indeed, Gréagru had said "Wéranu," using the old masculine form of the name rather than "Wérano," the "spiritualized" form of the name that Widumaj had promulgated. No doubt Gréagru was referring to an ancient idea of some sort, in hymns older than the great widu's. He wondered whether the Tutanɛ knew about Widumaj.

"If you want to suffer, why do you have horses and cattle?" he replied, after a moment's thought. "Give all of your animals away and scratch out a living in the wilderness. No, everyone wants to be warm and fed, and have some wealth. I think there will always be rich people and poor people. But maybe we can all be a little richer?"

"Maybe," replied Gréagru.

Just then the two-way radio crackled. "Hey Thornton, stop at the top of the mountain, will you? We want to look." It was the driver of the other rover, speaking in Eryani. Thornton looked at his astonished companions, then picked up the microphone.

"Okay, we'll stop." He didn't attempt to explain the technology.

The top of the ridge was quite close. They stopped and everyone jumped out, rock hammers in hand. Thornton paused to admire the view; they could see a long way over the rolling, brushy plains to the west. To the east was a wide, green valley, then the land rose more sharply into foothills and became lightly forested. There were hints of snowy peaks on the horizon, behind some clouds.

The Tutanɛs were struggling with the doors and one was beginning to crawl out the window, to the laughter of the other students, so Thornton showed them how to open

the doors. Albékwu watched the students picking up rocks and looking at them, and breaking them with hammers. “What are they doing?”

“Studying the rocks. Come watch and you’ll see.”

“How did you get here from Gɛdhéma?” asked Arktinogu.

“That’s a long story.”

“We have all day.”

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Thornton talked with the Tutanɛs while he drove the rover eastward. They stopped every hour to look at rocks and make a measurement on the position of the sun. Then he had to spend half the time until the next stop answering their questions about something that was done or said, and the rest of the time about some random question about Earth.

He asked them questions too, and gradually they became more open. He asked about the land around them, which very soon became mountainous. The road climbed along the side of a forested valley, then between hills and into another valley, avoiding a gluba and a waterfall they could see and hear from a distance. Albékwu, however, had ridden through the area and described it in great detail, including the game he had killed in various successful hunts. The second valley widened out into a rolling plateau of grass and fir trees for a while, then rose through rounded granite hills until they reached the edge of the Spine itself: an irregular north-south ridge about sixteen kilometers wide and over 3,000 meters high. The road started up it and the air grew cool. Alpine flowers were open and brightly colored. As they went up Thornton got all four of them talking about cattle and sheep herding and a life of mixed wandering and settling. Every tribe had a permanent winter settlement, with small houses of stone or wood, garden plots, and

animal enclosures. Someone was there all the time, usually women, small children, and older people; men watched the herds as they wandered in search of green grass—higher in the summer, lower in the winter—and stopped at home periodically. The young men loved the life because of the hunting and adventure. The older men preferred to be at home. The Tutanɛ seemed to have little sense of who was a chief—chiefs were chosen by the elders or recognized informally by the people—their hierarchical sense was based on sex and age.

They stopped halfway up the slope at a wide spot to whack at rocks and measure the position of the sun. Thornton handed the sextant to Albékwu to let him take a measurement; they usually took three or four measurements by three or four people so everyone got experience and could compare the results from each other. Albékwu had to put down the sextant afterward and point to the number he had gotten because he didn't know the numbers; Thornton nodded and wrote the result in his field book.

"All of you are writing," Albékwu said, looking around.

"Of course. It allows us to remember everything correctly."

"My people could use this."

"Send someone to our school and we will teach him. It takes two or three months of intensive classes to master the skill."

Someone raised a rock. "Is this copper?"

Amos hurried over; many of the others gathered around as well. Amos looked at the fleck of bluish-green, then nodded. "Yes, malachite." He looked at the rock outcrop. "There's a lot of it here. But probably not enough for a mine."

“How can copper be green?” asked Arktinogu. It was an obvious question; the word “copper” meant “red metal” in Eryani.

“It’s only red after you refine it. It’s green in the rocks,” replied Amos.

Arktinogu picked up a greenish rock and turned it over in his hand. “I’ve seen rock like this before,” he finally said.

“Where?” asked someone.

“I don’t know. I’ll have to think about it.”

“There’s no copper near Mɛddoakwés,” said one of the students from the eastern shore. “It’s all shipped in from Bɛllɛdha.”

“We are farther from Mɛddoakwés right now than Bɛllɛdha is,” pointed out someone else.

They continued to walk around the road and look at the rocks. Arktinogu stared at the piece in his hand, fascinated. When they got back into the rovers he asked questions about minerals. The Tutanɛ, on their wanderings, saw a lot of rocks.

The road switchbacked up the slope and soon was above the tree line. Peaks to the north and south had snow on them. Finally the ground began to level out. The road had repeatedly crossed a stream; now it paralleled a mountain lake. Between the lake and a pinnacle was a collection of houses, with a big fort on the pinnacle, with barracks inside for 250 men. They had reached Kostɛkhéma, Éra’s most isolated royal settlement. Across the lake they could look eastward to where the ground dropped away; the other side of the Spine.

The two rovers were quite an impressive sight to the settlement’s inhabitants, who poured out of their houses to see the strange machines. Thornton, Amos, and Gɛlnébɛlu

were occupied explaining to people who they were and what the machines were. The accents were a fascinating mix of eastern shore, Tutanɛ, and even a few from the western shore.

By and by the commander came along and exchanged warm greetings with Gɛlnébɛlu, whom he knew. They quickly agreed on a campsite for the expedition. It was already close to sunset, so it was time to settle down for the night.

"So, we made it here in two days," said Gɛlnébɛlu to Thornton, as they began to unpack the tents. "Now what do we do?"

"We'll do some geology here tomorrow, and record all the information we've gathered on a map," he replied. "Maybe we'll even venture farther east."

"We can't. The road ends here."

"There's no route to the lake? It's what? A hundred dɛkɛnt from here?"

"Maybe less. But you'll have to walk or hire horses. It's all forest. There was a road once, but the forest swallowed it."

"I see. Then I guess we'll stay here tomorrow, then start back slowly. We can make longer hikes away from the road on the way back. Where it bends we can hike across the land in between."

Gɛlnébɛlu nodded. "And what about our four Tutanɛ friends?"

"They're alright. We talked all day. They're fascinated by the machines, the radio, writing; everything. They're no danger."

"The queen will be very angry you invited them along."

"Perhaps. But I spoke to my father and he was pleased."

Gɛlnébɛlu struggled to remain respectful. “You Gɛdhémus do not understand Éra. The Tutanɛ are people, yes; but they are barbarians. They have no culture, no literature. They live in the barest of houses; I hesitate even to call them houses. They live with animals and like animals. They speak a crude Eryani. You’ve seen all this. The Tutanɛ are. . . Tutanɛ, and always will be Tutanɛ. They can’t be trusted; force works best to control them. I am surprised you were able to talk to them at all. But I’d be very careful, because they could slit your throat. You can’t teach them things, like civilized people. It makes them more dangerous.”

Thornton stared, anger rising in him. He was tempted to say many things, but knew his father would be angry, and he would have to tell his father whatever he said. He had been angered by many comments last night and had not spoken up, and had slept badly as a result. “You are wrong about Gɛdhémɛs. We understand some basic things about Éra, because in many ways it is like Gɛdhéma. On Gɛdhéma many people hate other people. Many believe their people are superior and the others are barbarians. Sometimes they even have science that they say proves they are superior. And on Gɛdhéma there are terrible wars because of the hatred and prejudice. So Gɛdhéma is like Éra. But Gɛdhéma also has many who say Esto wants all people to accept all other people and to love them. Just like Éra. Widumaj says ‘love my servants as you would love me, and serve all to the extinction of your life’ does He not? There are many hymns on this theme.”

Gɛlnébɛlu stared at Thornton, wondering how to open the stranger’s eyes. “And now the Gɛdhémus quote Widumaj,” he finally said, shaking his head.

"Let's not quote Widumaj. Let's try to live by His hymns," replied Thornton. "Otherwise all this new knowledge will just make for bloodier wars."

45.

Graduation

The return trip to Mɛlwika was leisurely and successful. In five days they were able to hike from the road quite a distance, looking at the geology, enjoying the land, and doing a little hunting. In one day-long hike they trekked to a big gluba with a magnificent waterfall at the end, then down the river valley to the road again, spotting one gold nugget, some galena, and a deposit of cinnabar. There was also a very impressive pegmatite vein with enormous, colorful crystals; Amos took quite a few samples so that he could later determine whether anything was of use. An hour before they reached the road they also managed to shoot a deer; that night the expedition enjoyed fresh venison. But they never met any members of the Késtonɛs, the small tribe that controlled the land along the road in its highest stretch; it was a shame, since exploitation of the minerals would require their permission.

Another hike near Gordha took them northward along a creek into an area that was disputed between the Mɛghɛndrɛs and a small neighbor, the Mémɛnɛgonɛs. Unfortunately in the disputed area they found silver and lead. It was not something to mention, as it could cause a war between the tribes.

After leaving Gordha they made several hikes along the Tɛrsakwés. Arktinogu—who was still with them—went off on a hike of his own and returned the next morning with a bag full of malachite; he had remembered where he had seen the deposit. He described it to Amos, who confirmed that it sounded large enough to mine. But Arktinogu would not disclose its location.

They returned to Mɛlwika a day early loaded with rock and mineral samples and with happy but tired students. Liz had a big supper ready for the family members.

"So, you found copper, mercury, silver, lead, and gold," said Chris. "Pretty good."

Amos shook his head. "The gold was one nugget and the silver and lead deposit is unminable. But I think the Dwobɛrgonɛs will mine the copper, and we can get the mercury ourselves, with permission of the Késtonɛs. We'll be able to get some lead there as well."

"That'll please Miller; maybe he'll forgive us for giving away our knowledge," said Chris.

"Is he still mad?"

"He hasn't talk to us all week," replied Chris. "He's especially mad Amos went away. He wants you to work on the turbine and generator."

"Now that my class is almost finished, I'll be able to give him more time than before," replied Amos, irritated. "I'll go talk to him tomorrow."

"We'll also catch some heat about teaching the Tutanɛ," said Thornton.

"Don't worry about it; I'll manage. Do you think we might get some students?"

"Yes, I bet Walékwɛs will send us a few. Maybe the Dwobɛrgonɛs as well."

"That would be a coup, considering they almost attacked us a few months ago!" said Liz.

"But important. The Tutanɛs need knowledge if they are to keep their land," said Chris. "I have already started to make inquiries about going to the annual grand court next month. I think Lord Mayor Kandɛkwɛs will intercede and ask that I be allowed to attend as an observer. Maybe it will come up there."

“Gɛlnébɛlu pressured me constantly,” said Thornton. “So did a few of the students. But I think by yesterday they were beginning to respect the Tutanɛs a bit. Some of the hostility seemed to be disappearing.”

“They were even drinking together, last night,” added Amos.

“And the map?” asked Chris.

“We already have a crude one,” said Thornton. “Give the class about four or five class sessions to refine the information, then we’ll enter it into the computer and print it out. I think the engineers will be very pleased.”

“For a final writing exercise, I want everyone to write up a report of the field trip,” said May. “It’ll be good practice.”

“How are the crops?” asked Thornton.

“The students are back just in time to see the caterpillar infestation,” replied Chris. “It started two days ago and is growing. But we’re pressing Neem seed oil right now, and tomorrow—or the next day—we’ll be ready to start applying it on the crops. The caterpillars don’t die suddenly, but they will die.”

“The oil mimics a growth hormone and prevents their hard shells from molting,” explained Lua. “The caterpillars eat, expand in size, and literally are crushed to death inside their unbreakable shells.”

“Poor things,” said Liz, popping a piece of meat in her mouth.

“We’re also irrigating,” added Chris. “We’re using a lot of water, too. The Arjakwés is flowing pretty briskly to maintain Moritua. But there’s plenty of water, for now at least. Mɛlwika’s first-time farmers are very happy with their crops. We’ll have a big harvest, especially if we stop the caterpillars.”

“How’s the steam wagon doing?” asked Amos.

“It’s being repaired; they ran it into a ditch alongside the road. But the damage was pretty minor. Yimu has started on the engine for wagon number two, and they’ve ordered a fourth wagon from Mɛddoakwés. The builders will be here next week, Amos. Miller has decided he wants them to come see what we do, so they can make a wagon closer to our specifications.”

“Will wonders never cease,” said Amos.

“He’s realized if he wants to fill all the orders coming in, he can’t make the entire machine from scratch,” replied Chris. “Now, where are we with the classes? Did you cover everything you wanted to, on the trip?”

“We needed to do more English,” said Amos. “We did get some done at night. Even the Tutanɛ learned a little! But we finished all the geology and more. I was impressed how comfortable the students were with the geological terms.”

“And the ideas,” agreed Thornton.

“What are the highlands like?” asked Chris.

“They’re a strange rock; smashed, and then cemented back together with minerals and sometimes with basalt,” replied Amos. “It’s probably thermally metamorphosed chondrite. Thornton plans to do some research on the web to figure out what it is. It looks like Éra is kind of like the earth’s moon, with a thin basaltic crust and lowlands on the side facing the planet it orbits, and a thick crust and highlands facing away from the planet. If we’re right, that means this little place once was mostly melted, and the crust formed, all while orbiting Skanda.”

"We may want to ask Philos and his friends," added Thornton. "Do we have enough time left to finish all the classes we want to give them?"

"It'll have to be enough," replied Chris.

After supper Thornton and Lébé left the table. "Let's walk," she suggested.

"Where?"

"Up the mountain."

He nodded and they walked out of the house. Mɛlwika had grown noisy and a bit crowded, but there weren't many people by the iron and steel works, because they were closed for the night. So they walked across the yard separating the house from the works, then followed the road running inside the city wall to the sawmill and grist mill. The former was quite busy with a night shift working by lamplight, sawing boards; they could hear the sounds of the men and smell the sawdust. They walked past it and along the upper edge of the gluba. A few months ago the area had been rocky wilderness; now it had a decent gravel road and Miller had planted olive trees between the road and the gluba edge. Below, water rushed along.

They followed the road until they reached a sharp bend and it began to climb up to the peak, where a guard tower now dominated the scene. Thornton and Lébé lingered under a baby olive tree looking at the shimmering water of the reservoir under a bright Skanda.

"I missed you," Lébé finally said.

"I missed you, too. I'm sorry you weren't able to go along. It would have been rough, with all those men."

“We would have had no time together and I would have been busy cooking and cleaning. I’m glad I didn’t go,” she replied. “But I enjoyed teaching women’s classes. We now have six widows who have settled here from Mɛddoakwés and May is trying to employ as many of them as possible until they can harvest their first crops. We’re teaching them to read, so they can be better nurses. And your mother is teaching them to knit.”

“Knit? Well, yes, I suppose they can make a lot of money that way, since no one is doing it.”

“Exactly. It’s a new craft. Lua also spent a lot of time with me while you were away. She helped me read a novel.”

“Really?”

“Yes. She had to explain most of it, but I understood it pretty well, I think!”

“Good. Are you thinking of writing one?”

“Yes, how did you know?”

“You told me you write a diary. You like to write. So you should write a novel.”

“I think so, too. The first novel in Eryani. What will we call novels in Eryani? Perhaps `nowɛli.’“

“That sounds good. Novel comes from the same root as `new.’“

“I know. I spent a lot of time with Jordan, Rostam, and Bahiyé, too. Dhoru, I want a baby.”

Thornton was surprised. “I thought we wanted to wait a little while.”

"Well, now I'm not so sure. Both of your sisters have babies and they are working. They can do that because there are so many sisters in law in my father's house who can watch children. So maybe I can have babies and finish my education."

"Maybe. Do you want to take a chance?"

"Yes. I am determined to continue my education, and you are so supportive of it. Even Awsé is supportive, you know. I talked to her. She said she would help."

"Really?"

"Yes, she says the sooner I have my family, the better; the children will help later, and you have more time with them. And she wants me to get my education because she wants me to do better than she was able to."

"She did pretty well!"

Lébé smiled. "Even if she isn't my mother, she's an incredible woman, and I love her very much. I've been teaching her to read the new letters, you know? She's gotten very good."

"I'm sure. She'll probably teach your father, because he's too proud to come to us."

"Oh, she has taught it to him! She's trying to get father to do a lot of things, but he won't change. It's hard."

"I know." Thornton looked down on the waters. Children. It was a big step. "Well, if it's time, it's time."

"I think so," she replied.

The next morning Thornton was free before his afternoon class. Rébu, as usual, was holed up with Thornton's computer, so he walked outside and wandered around town to see what was new. The housing plots in the western and southern enclosures were now all taken and houses were being built along the roads that cut the side of the mountain above the iron works. People were still coming to Mɛlwika to settle even though the first harvest had not come in. Miller was still hiring; he needed iron workers.

Thornton came back down the hill as Mitru arrived on a wagon heaped with coal. He waved.

"Good morning, Dhoru!"

"Good morning, friend Mitru. How are you?"

Mitru smiled. "Pretty good. I wish I were driving my steam wagon, but it still isn't ready. So I'm hauling coal with horses instead."

"When will you take the steam wagon to Ora?"

"Next month! The Réjé wants me to pick up most of the Lords of the western shore and bring them to the grand court. It'll be faster than the caravan."

"And a grand occasion to inaugurate the steam wagon. I'm happy for you."

"Thank you. What's Kostɛkhéma like? I'd like to see it some day."

"You probably will. It's the size of Nénaslua, but the houses are smaller and broken down. The setting is beautiful, though; there's a snow-capped mountain maybe an hour's hike away. The soldiers keep the peace, so many people have settled there to serve them."

"I want to see it. I was so jealous that you got to go there!"

"Maybe the steam wagon will go there, some day. They're improving the road."

"Maybe. Meanwhile, Diné's driving me crazy with her nagging. I can't wait to be on the road; away most of the week, back for a few days only!"

"That may be the best for your marriage," agreed Thornton, with a smile. "I wish Lébé and I could help."

"Your father and mother have been able to help," replied Mitru, but he lowered his voice. "While you were away, Diné and I had supper with them. They gave us some ideas."

"Good; I'm glad."

"I wish he could talk to my father about a few things. My brothers—most of them, anyway—are getting very angry about father never giving them any say about anything; the iron works, the wagons, the ice house, anything. He can't keep running everything and expect us to obey like we were dogs! Besides, Tritu and Manu have some very good ideas and when father ignores them, he slows everything down."

"Yes, that's a problem. Maybe Amos can talk to him. I think your father respects Amos more than anyone else."

"Yes. And your father."

"You should talk to them."

"I can't; but maybe Tritu can. I'll suggest it to him."

"Good."

A week later, with the end of the term looming, it was time to finalize some of the plans for génadɛmas. So Wɛrétrakɛstɛr took a wagon from Mɛddoakwés and Mitrubbaru joined him and Chris in Mennea's office. It was in the basement of the génadɛma, cool on

hot days but brightly lit by sunlight streaming three stories down a skylight, and light that came in from a high, glass paned window in the office's north wall. Chris offered them both tea from the kitchen across the hall, and slices of orange cake that Liz had made for them. Oranges were hard to get; the flavor was exotic.

"So, I take it the students feel ready to graduate," said Chris to Mitrubbaru, who immediately smiled.

"Yes, I think yesterday was quite a dramatic demonstration of that."

"What happened that was so dramatic?" asked Wɛrétrakɛstɛr, curious.

"It was the culmination of a two-day project in the advanced science class," explained Mitrubbaru. "Two days ago the entire class took an afternoon trip south of here, 21.8 kilometers. We drove straight south down a dirt track, then across the desert as straight as we could go to an oasis of one of the Tutanɛ tribes. We measured the distance with the rover's odometer—" he paused to pronounce the English word carefully— "and at the oasis we used the sextant to measure the position of Skanda in the sky. That told us we had driven 14 degrees of latitude; we were at 22 degrees north.

"After we did a bit of geology and enjoyed the local dates—and bought some oranges—we drove back. Then yesterday Amos led everyone through a fascinating set of experiments. He started by asking us what the circumference of Éra was and then showed us that the odometer reading and the difference in latitude could tell us. If 14 degrees of latitude is equal to 21.8 kilometers, then 360 degrees is 560 kilometers. That's how far it is all the way around. Then he asked us how we would calculate Éra's diameter and reminded us that the formula for a sphere would tell us—"

"But is Éra really a sphere? It has mountains," pointed out Wɛrétrakɛstɛr.

“The mountains are like tiny bumps only,” replied Mitrubbaru. “Once we realized that, a whole world of thought opened up! We calculated the diameter: 178.4 kilometers. Then he asked us the surface area, and we used the formula area equals 4 pi times the radius squared; Éra has a surface area of about 100,000 square kilometers.”

“It can be figured that easily? Of course, I can’t picture a square kilometer,” said Wɛrétrakɛstɛr.

“It’s equal to four square dɛkɛnt,” replied Mitrubbaru. “That is, if we use the ‘metric dɛkɛnt.’ The exact length of the dɛkɛnt is not officially fixed and it varies from town to town. Here, a doli is defined as half a meter, and a dɛkɛnt is 1,000 doli so it is 500 meters or half a kilometer.

“But then things got interesting! Amos asked us to weigh Éra’s atmosphere! We said that was impossible, but he pointed to the barometer and asked us how much was the weight of air above each square meter, and we figured that out; the air above each square meter weighs a bit less than 10,000 kilograms, or 10 tons, or 1,700 metric lɛdhi. Éra has 100,000 times a million or 100 billion square meters, and thus it has about a trillion tons of air!”

Wɛrétrakɛstɛr raised his eyebrows. “A trillion. . . such an unimaginably large number!”

“It is, but at least you now have a word for it,” replied Chris.

“We were beginning to feel like we could measure anything!” exclaimed Mitrubbaru. “Then Amos asked us to figure the volume of water in Long Lake. He gave us some dimensions and we assumed an idealized shape, so that we could get an approximate idea of the size. The answer is 2,100 cubic kilometers of water. He asked us

how much land it would cover if the water were an average of 100 meters deep, and we figured it was 21,000 square kilometers; a fifth of the surface of Éra. Then he said the old seabed—the desert around Sumilara—is very flat, and about that large. Suddenly we realized where the sea had gone, and when he reminded us of the hydrologic cycle that had been covered a few weeks earlier, we suddenly understood how the water went away. It was an amazing feeling; suddenly we really *understood.* Then Amos called for a hymn."

"A hymn?" asked Wɛrétrakɛstɛr, surprised. "Why?"

"The Hymn in Praise of Esto, where it speaks of His power," replied Chris. "We don't want our scientists to think that because one can't simply say the sea went away because the people sinned, that one can no longer believe in Esto. Esto understands the hydrologic cycle too!"

"A good point," agreed Wɛrétrakɛstɛr. "When old, simplistic beliefs are destroyed, they must be replaced by newer, scientific beliefs in Esto."

"Exactly," replied Mitrubbaru.

"So, you think you can measure anything, now?" asked Chris.

Mitrubbaru nodded. "Yes, in scientific notation!"

"What about Esto?"

"No, we don't mean anything in that sense! Anything in this physical world!"

"I see," said Chris, smiling.

"When we return to Ora, Honored Mennea, will we be able to take the equipment we made?" asked Mitrubbaru.

"Of course! We had everyone make a barometer so they would be able to use it correctly. Everyone made a meter stick and a kilogram and a liter so they would have a standard of measurement. Everyone made an abacus so they would have one for their accounting class. They have to take those things with them! Everyone should take their rock and insect collections as well. I am hoping the steam wagon will be working well enough by then so that it can pull all of you home, with all your equipment. It is essential."

"A good school will need more, though," said Mitrubbaru. "We need a microscope, for example, and a still for making chemicals."

"I know. We've sent a message to the *aliénɛs* because they could provide such things to us; in fact, we feel they have an ethical obligation to do so, because they put the people here and then did nothing to help them. But the *aliénɛs* have not replied."

"What about paper and books? And we will need you to visit, so we can train people correctly."

Chris nodded. "We can sell you paper and books until you can make your own. And all three schools will need to exchange teachers regularly. The steam wagons, really, are the key, because they will give us reliable transportation and communication." He used *trabéro,* "carry across," the word they had invented for "transportation" and *trawékwo,* "speak across," the word they had coined for "communication." "Mitrubbaru, do you think the plan to establish a post office at the Mitrui Génadɛma will meet the approval of the Lord?"

"Yes, I am sure."

“I have already spoken to the merchants in Mɛddoakwés about the idea and they are very pleased,” added Wɛrétrakɛstɛr. “If we establish a post office with every school, as the schools spread, the post offices will spread, too. The teachers will be able to write the letters and read them, and the students can help. It is very simple and clever. And the steam wagons will make the system fast.”

“The schools might even make a little money,” added Chris. “But more important is the fact that they immediately become relevant and important, especially with the people who have the money.”

“Now, have you solved the problem of keeping time?” asked Wɛrétrakɛstɛr. “If we want to teach classes of an hour and a half at specified times during the day we need machines like your watches.”

“This is a problem,” agreed Chris. “Amos thinks he can build a real clock in the next year or so, if we can’t get any from the *aliénɛs*. It will be a large thing, two meters high and half a meter wide. He has already started to think about it. Until then he proposes building a water clock. We already have the glass maker working on it; it’ll be a cylinder of glass about a meter and a half high with a small opening in the bottom to let the water out. Someone will have to fill the water clock every morning at sunrise. If you want exact time you will need to adjust the height of the water at the end of the eclipse, since we know exactly when the eclipse occurs in every city. If you want the time at night, refill the clock at about sunset. Whoever watches the clock will also have to ring the bell every hour. I think the entire city will regard the bell as a service, once they get used to it. People will plan their appointments at one bell, two bells, three bells, etc.”

“But we will still need watches for some scientific experiments,” said Mitrubbaru.

“Maybe not,” replied Chris. Amos had everyone make a pendulum; the pendulum is set to swing once a second, so that can be used to measure seconds. Hourglasses that use the flow of sand can measure minutes pretty well. And the water clock can measure hours. If one of my family comes to your school we can check your pendulums for accuracy.”

“Can you make an hourglass for an hour and a half? Then when the class begins, the teacher can turn it over, and everyone can watch the time flow,” suggested Mitrubbaru.

“I think we can,” agreed Chris.

“And you’re planning another three-month set of courses after the fall equinox?” asked Wɛrétrakɛstɛr. “That gives us a lot of time to find students.”

“Exactly. The Mɛlwika Génadɛma will give three-month courses twice a year; maybe eventually we will do it three times a year, but twice is enough right now. In the fall we plan to offer intermediate English. And Wɛrétrakɛstɛr, I have asked May, and she is willing to travel to Mɛddoakwés three times a week to give an English class in your génadɛma, so you can schedule it.”

“Excellent!” Wɛrétrakɛstɛr smiled. “That will attract many students.”

“But you can’t use your courtyard as a classroom,” said Mitrubbaru.

“It is unnecessary. Lord Kandékwɛs has agreed to build a génadɛma like this one, with classrooms and a dormitory. When all the lords gather in a few weeks I am sure many will express interest in sending young men for training. Oh, and honored Mennea, you are invited to the court; Lord Kandékwɛs was successful.”

“Oh, thank you.”

“I have another question,” asked Mitrubbaru. “Can my génadɛma get a registration book like you use? Then we can use the same system as you. We’ll even give everyone a family name. I think we’ll offer three-month classes in the summer and winter when you aren’t; that way sometimes you can come teach at our school, and we can teach or study at yours.”

“That’s a good plan.”

“Will it be possible for your génadɛma to prepare diplomas for our students?”

“With photographs? Yes, if we can bring the equipment to Ora. If you have a good artist you can send us small drawings of the students and we can make diglomas for each one. That would work, also. Let me ask you both a question: how many Génadɛmas does Éra need?”

“As I understand your philosophy, children go to mɛndhadɛmas and adults to génadɛmas or universities,” said Wɛrétrakɛstɛr, slowly pronouncing the English word. “Based on that, eventually every major city needs a génadɛma, so we need at least four more. Maybe they will be established quickly; maybe not.”

“It depends on the lords,” agreed Chris. “Yes, I think you are right: it would be best if there were génadɛmas in Néfa, Isurdhuna, Bɛllɛdha, and Tripola as well. I would add Anartu to that list; the Sumis need a génadɛma, too, and I am sure Lord Gilran will pay for it.”

“But the queen may forbid it,” exclaimed Wɛrétrakɛstɛr. “This is not the kind of knowledge she will want the Sumis to have. Let them keep their dusty old library.”

“A library that has much information about the Eryanɛ, remember.”

"Yes, I am sure. I do not share the strong prejudice of my countrymen against the Sumi. Perhaps someday it will happen. Their génadɛma may have to use Eryani."

Chris considered. "Perhaps that would work, for a start. As all of you know, I am a practical man; I do not push hard for something that I know is impossible. And I am a guest on this world. There is a powerful prejudice against the Sumis, perhaps because they have always been a clever and successful people. Sumilara has a remarkably large population in spite of its small area; I think it may have one fifth of this world's people. Every royal city has a Sumi quarter in it; they have settled there, where they are merchants and artisans. They have a right to education, like everyone else."

"Chris, I will promise this: the Mɛddoakwés Génadɛma will accept them as paying students, like anyone else who can learn in Eryani. They will be in the same classrooms. That has always been my position and Kwétɛru is the proof."

"But Kwétɛru is also part of the problem; he seems arrogant to his students, and he communicates poorly as a teacher," added Mitrubbaru. "I don't know what can be done about that. I am not as respected as the widu, so I do not know whether it will be possible to include Sumis in our génadɛma in Ora. But I will try."

"Let me know whether I can help, Mitrubbaru," said Chris. "I have a good relationship with your father. So does Wɛrétrakɛstɛr."

"I'll let you know. There is one matter perhaps you could consider. My brother Mitruiluku has greatly enjoyed teaching here, but now that we will have a génadɛma in Ora, he yearns to return home and teach in it."

Mennea was only a little surprised. "I have wondered about your brother's intentions. He has become an excellent teacher of the new writing system. He is also

becoming an impressive writer and thinker. I am very pleased with him. He should come to speak to me and ask to be released; then I will release him."

"I will tell him," replied Mitrubbaru. "Thank you, Honored Mennea."

"I am very happy that we can work together and I hope we will always work closely together," said Chris, pleased with the result of their discussions. "Éra needs a génadɛma system and the génadɛmas must cooperate fully to establish it. We can compete to see who will be best, but we must help each other be the best we can be. Perhaps we can be a model for all of society. Our génadɛmas must give services to society, too; a teaching of Widumaj to reinforce and spread."

"I am excited, too," said Wɛrétrakɛstɛr. "Because this world still is very ignorant of the teachings of Widumaj, and they are the key to transformation. The génadɛmas must be the center of diffusion of the hymns."

"They will be," agreed Chris. "But what will the priests say?"

"I hope they don't realize what we are doing right away, because they will be a powerful enemy. But the Réjé is on our side. She wants the new knowledge, and she doesn't want it to destroy our traditions. Génadɛmas that teach the new knowledge and not the hymns could be very dangerous to social stability. She knows that, too. And what can the priests say? They can't demand génadɛmas for teaching the rituals!"

"When we get more mɛndhadɛmas established, we must encourage priests to go to them and teach the children about the priesthood," suggested Chris. "I know you dislike the idea, Wɛrétrakɛstɛr. But consider how it will help bring the priests around. And génadɛmas must stand for the free exchange of ideas: consultation will bring the truth. Let them participate in the consultation."

“But you just switched from mɛndhadɛmas to génadɛmas. Children can’t consult,” pointed out Wɛrétrakɛstɛr.

“Then we will find some sympathetic priests. Gentlemen, are there any other questions?” Chris looked at them with a smile. “Then let me get you another piece of orange cake.”

The graduation ceremony was a grand occasion. Two days before, Mitru was pressed to drive the steam wagon to Ora because some Lords wanted to come to the grand court early enough to attend the graduation. The steam wagon was still unavailable, but the rovers were; they brought twenty from the other side of the seabed to Mɛlwika the night before the ceremony. With the news that they were coming, the Queen sent her daughter and the Lord Mayor as her official representatives. Many in the army and bureaucracy came as well. The attendance was so large the program had to be moved to the grassy field below the gluba, outside Mɛlwika’s walls.

Many hymns were sung by individuals, groups, or everyone present. Wɛrétrakɛstɛr, the Lord Mayor, and General Aryornu gave speeches, followed by three students. Then each student came forward and received a very impressive diploma that bore his photograph on the front and a list of subjects he had successfully studied on the back. They wore special robes for the occasion as well, white edged with red and gold..

Then the food came out, great tables of it under a big tent, thanks to the efforts of Lua’s widows. Everyone began to eat. Under an adjoining tent next to the river there was music and dancing.

Chris was constantly pressed by people who wanted to talk to him. One of the other sons of Lord Mitru of Ora was married to the sister of the Lord of Tripola, and she was determined that Tripola get a génadɛma as soon as possible. She talked Chris's ear off about the idea; she sensed he was a man willing to talk to a woman and took full advantage of the opportunity. Enthusiastic students introduced Mennea to their fathers or other relatives. A few aristocrats who had attended wanted to talk to him about what he could do for them.

Wɛrétrakɛstɛr waited patiently for a chance. Chris sought him out once there was a break in conversations; he didn't want to offend the widu.

"Lord Wɛrétrakɛstɛr, thank you for coming," he began. "The ceremony pleased you?"

"Indeed." From the sound of his words, Wɛrétrakɛstɛr was a bit tipsy. "I think we are starting a revolution for the better for this entire world. I hope the queen will be pleased."

"Much can be accomplished."

"Yes, if we can continue the momentum." He smiled. "What excites me is that we can teach young people to *think.* To think clearly and rationally. To make decisions based on reason, not emotion. And we can teach them virtues at the same time."

"Of course, it is easier to learn reason than virtue."

"Yes, of course!" The widu laughed. "That is the human condition. And that will be our downfall. When one of our students uses reason for an evil purpose, or what appears to be an evil purpose, we will be blamed. You will be blamed. I will pray that day is postponed as long as possible. May Esto guide them all and restrain their left hands."

He used an Eryani expression referring to the right hand as good and the left hand as the source of evil.

Chris nodded. “We are praying for them, too. I worry more about arrogance than anything else. We stressed humility in our classes every day, but it is hard not to feel superior when you are so different from everyone else. And even three months of classes will make them feel different.”

“Indeed. I will pray for you, also, Honored Mennea, for a long service to our queen and our people.”

“Thank you,” said Chris, aware that General Aryornu was pressing in to talk to him. Wɛrétrakɛstɛr noticed as well and retreated.

“My congratulations to you, Honored Mennea,” the general began, typically polite as Eryanɛ always were. “Your génadɛma is a great success and appears to have a shining future ahead of it.”

“Thank you, General Aryornu. The army has been an important part of our success, and I must thank you for that.”

The general smiled. “We have always been very pleased by your assistance to us. We hope this change in the way you teach classes won’t change your arrangements with the army.”

“We will be happy to offer your people special courses in the summer and winter; our new way of teaching will be followed in the spring and fall only.”

“I see. I understand you have a map of the route to Kostɛkhéma?”

“Yes. The students made a trip all the way there and worked on it together. It was a class project, so it has the ideas of many people in it. We will be able to send you a copy in about a week, and I can show you what we have today, if you’d like.”

“Yes, that would be good. We need a thorough map of that country; did you do only the road?”

“No, the students went 10 to 20 dɛkɛnt out on each side, depending on what they could see easily.”

The general’s face brightened. “Excellent! That will be of great assistance.” He pointed to the steam wagon visible up the hill, outside the wall. “How are the steam wagons coming?”

Chris was getting irritated by the questions, but he tried not to show it. “I think they’re fixing many of the problems. Did you hear what the early problems were? The wagon has a wheel you turn to steer and the wheel was so difficult to turn that the wagon could not go around bends in the road properly. The faster they would go, the bigger the problem. Several times the wagon went off the road and was damaged. There were also problems with the brakes, which stop the wagon once it is moving forward. There were also problems making it go backwards, which is essential to using it. But the many problems are mostly fixed.”

“And it needs a good road, like the road to Mɛddoakwés?”

“Yes, ideally. Otherwise it must go slowly.”

“Hum.” The general was silent a moment, thinking. “How long will it take to go to Ora on the royal road?”

“As the road stands now? Maybe fifteen hours.”

“Fifteen hours?” He was surprised; he probably had expected an answer in days. “And via Bɛllɛdha?”

“The condition of that road is about the same, so maybe twenty-four hours, or one day.”

“And with improved roads?”

“If you can just fill the low places where there is mud and build bridges over ravines and creeks, the trip will take half as much time.”

“Half? We can go from Mɛddoakwés to Ora in seven hours?”

“Indeed.” Chris did not try to explain that on a good road on Earth, the rovers could travel the distance in two and a half hours or less. The general seemed stunned by the announcement. “Did not Roktɛkɛstɛr tell you this? I explained it to him several times. When Thornton went to Ora to pick up these guests, they made the trip in each direction in about seven hours. The rovers, however, are designed better than the steam wagons and can go much faster.”

“He explained this to me, but I needed to hear it from you as well.” Aryornu was silent, thinking about the implications. “I understand you need your rovers for the second planting in a week or two, but after that we will need to borrow them again, to develop the roads to Ora via Bɛllɛdha and Tripola, as well as the Kostɛkhéma road. I hope we will have steam wagons by then as well, because the work will go faster.”

“The first steam wagon should be ready for regular work in a few days. It will go to Ora to pick up more people for the grand court, and return them home.”

“And a second wagon?”

“It will be ready very quickly; another few weeks, I believe. It will be built to avoid the problems of the first one. But both wagons will require repair and redesign for a year or more. We will make each one better than the earlier ones.”

“I understand.”

“You should ask Miller these questions, as he knows the answers better than I do.”

“I didn’t see him; he isn’t here?”

“No, he had pressing business. Tomorrow we start expansion of the dam.”

“Yes, I heard.”

“General Aryornu, a good road to Ora through Anartu will be much faster to build, and side roads to Bɛllɛdha and Tripola could be built just as quickly as the plan you propose.”

The general stared at Chris. “We are aware of alternatives when we make our decisions, Honored Mennea,” he said pointedly. Then he turned and walked away.

Chris walked out from under the tent so he would have a moment of privacy. Someone—the army, the court, maybe the Queen herself—decided that no steam wagons would serve Anartu. He had to let his anger subside before speaking to others.

46.

Grand Court

The next week was a whirlwind of activity. The students packed and most went to Mɛddoakwés, where they had places to stay and where most planned to attend the grand court as observers. The steam wagon was busy going back and forth between Mɛlwika and the capital carrying students and relatives to the city, merchants and workers to Mɛlwika, and peasants and their wares to Mɛddoakwés for the festivities that accompanied the Grand Court. Quite a few Tutanɛ stopped in Mɛlwika as well, riding the steam wagon to the capital for the day, then returning to get their horses and ride in for the court.

Meanwhile at Mɛlwika, hundreds of workers showed up to double the height of the dam; far more than expected, for the news had spread far and wide that Mɛlwika had work and irrigated farmland. After the first day, Amos and John had to turn them away, for all the farmland that could conceivably be irrigated had been assigned. Every lot within Mɛlwika's walls, all the way up to the top of the mountain, was assigned to someone as well; postponed until later was the question of whether to accept additional settlers.

The extra workers, several additional wagons, two rovers, and considerable additional experience meant that the expansion of the dam went faster than planned. Doubling its height required a quadrupling of the volume of rock and clay making it up. The width of the base had to be doubled and the penstocks of rock and cement doubled in length as well. Mɛlwika had been preparing for months; it had plenty of cement and iron

and was able to build penstocks that were much better than those built the year before. The month's work would include construction of a turbine housing, and Amos was now devoting all his time to refining the design so that they would have a functioning electrical system by the end of the summer.

Chris was busy for most of two days figuring out their finances, for the students were paying the last of their fees, the government's share had to be finalized, and there was a harvest to measure, store, and pay tax on. Chris also put together a plan for the rental of the rovers to the army—at a reasonable rate—as a bargaining position to get his taxes reduced, for the costs of the school were straining their finances. He had faculty to pay, he owed Miller money for the wood and brick in the school building, and there were many visitors asking for help to get their land plowed or for extensions on their rent. Rent was coming in, also, and each payment usually included a visit, a cup of tea, and a piece of cake with jam.

Lua and May were both busy as well. The clinic had a steady flow of visitors because with the harvest many people felt they could afford to get medical help and because trust in the clinic's capacities had spread. Lua saw a constant stream of people with abscessed teeth, twisted limbs, leprosy, severe worms, partial eyesight, serious infections, and many other things. May was busy helping students assemble the texts they would take home; the "widows" were busy too, helping, knitting, and making jam (another new item they could sell). Lébé helped May quite a lot, while Thornton plowed the farm at night (when the rovers were not used for the construction) and laid out the plan for planting the second crop of corn, wheat, peas, and lentils on their irrigated land. Behruz was busy making more alcohol, chemicals, and fertilizer than ever before, for the

demand for everything was rising. He had to hire several assistants and that also meant a new, larger lab in a new building; a further financial difficulty.

Many in town were busy as well. The foundry, rather than shutting down to free workers for the dam, increased its work, because orders for iron and steel kept increasing. The second steam wagon made its debut run one morning and managed not to crash into anything; a sure sign of progress on the steering and braking systems. Modolubu couldn't keep up with the orders for paper because every graduating student was buying as much as he could. The two new génadɛmas needed paper as well. The court wanted it and hoped to switch all its record keeping to paper within a year's time. Rudhu's glassmaking shop was busy with a lot of orders in town; a small glass window was a status symbol and many wanted one. He was also busy making bottles and jars, for which demand was rising. Pɛrku and his soldiers were busy watching the flood of strangers—many poor—controlling petty theft, and keeping an eye on the Tutanɛ who came through town. The flood of strangers coupled with a construction salary produced brisk business for the town's two taverns as well. Miller paid his men the morning of the sixth day rather than the night of the fifth so everyone celebrated in daylight.

Chris welcomed the grand court as a chance to escape the turbulence. Of course, it was a turbulence of its own. About a thousand aristocracy and their servants came to Mɛddoakwés, covering the field north of the city with large, brightly colored tents. Thousands of peasants flocked to town from all over the eastern shore and some from the west as well, doubling the city's population. It was a party all day, every day, for a week. Every street was covered with people buying and selling items, eating, and drinking. It was the one time of the year Erans looked half-way prosperous. Throngs attended the

annual recitation of all the hymns of Widumaj in the Temple to Esto, as well as the stories of his life. It was a remarkable time to visit Mɛddoakwés; Thornton and Lébé went as tourists.

The grand court was packed with about three hundred people, the majority men. The ones carrying red-tipped staffs were official attendees privileged to speak; the others were visitors. Even with the high windows open the temperature rose to uncomfortable heights in the hall. The Réjé sat on her throne, fanned by two servants, observing the proceedings; even though she rarely spoke, if she so much as stood to hold a brief private conversation everything stopped.

She began the gathering with a brief traditional address about Esto's blessings to her kingdom. It made no reference to a certain group of gɛdhémɛ arrivals or things they had done. This was to be expected; the Réjé was above such trivial matters. But after she finished, lords raised their staffs to signal their intent to speak and the queen's steward, who kept the order, began to recognize them. Each began by addressing the queen, then discussed their own district, then added their own opinions. The discussion edged its way toward the changes. When Lord Kandékwɛs' turn came, he was bold.

"Your Majesty, I believe the blessings of Esto have particularly rained upon my district," he began, referring to the half of the eastern shore, including Mɛlwika, that was under his direct but largely formal rule. "In the last year we have been brought a new way to write letters and a new material to write them on. We have a new way to write numbers and new ways to use them. We have new ways to store records and determine taxes. We can measure how much water we have for our irrigation and store more of it than ever before. We can measure the hours of the day accurately and plan our time. We have a new

understanding of the world around us that we can use to find minerals and grow more food. These are simple, measurable things. There are also wonders, such as wagons that use fire to move themselves without animals to pull them, which will soon bring all of us closer together. And then there are the spiritual gains; we can now all read the hymns of the great widu ourselves any time, and try to live our lives closer to their truths. Your Majesty, for these gifts we can thank Wɛrétrakɛstɛr and Chris Mennea and the génadɛmas they have created to develop new knowledge and guarantee progress." The closing sentence referred to the Queen, as was obligatory. It used two words—develop and progress—that had not existed as ideas in Eryan a year ago. Chris wondered what half the audience made of them. But overall he was pleased by the reference, because it was practical-oriented and sure to impress.

The next speaker had been scheduled to speak some time and talked about the wonders of his district east of Tripola, where there was a new, larger bison herd for them to hunt and a reddish bison that surely was a sign from Esto. He didn't say what the sign portented. It was a traditional speech full of traditional piety. The speaker after, however, was Jésunu, chief priest of Mɛddoakwés.

"Your Majesty, this year has indeed been full of signs from Esto," he said, building on a point many had made, including Kandékwɛs. "Some have been ominous; a drought and a fire here in Mɛddoakwés, which signal Esto's displeasure with something in the kingdom. Of this we can be certain. But others have been more subtle, yet potentially very serious. For example, while I have heard more are singing the hymns of Esto—for which all of us can be very pleased and grateful—there has been no increase in sacrifice to Him at His house here in the city. Indeed, sacrifice may be decreasing!

Decreasing! What good do hymns do, if they do not bring people to sacrifice in His house? Where is the evidence that they are changing the souls and making people more virtuous? ‘The more virtuous the man, the more he sacrifices to Esto,’ says one hymn. Where is the virtue?

“Indeed, my prayers and meditations to Esto have brought disturbing visions to me. I see women leaving their husbands and going to another city to live *without men*, attempting to be independent of him who should protect, instruct, and guide her! I see widows rejecting suitors to live without husbands! I see young men infatuated by new ideas and neglectful of their duties, arrogant toward their fathers, dismissive of their mothers, turning their backs on their ancestral hearths, abandoning the trades of their fathers, and suspicious of their queen! I see Tutanɛ restless at their lot and wishing to take land from our people! These visions profoundly worry me about our Kingdom. Esto seems to be warning us and we must pay careful heed to him, for he is our true protector and our true guide. New ways of writing letters or numbers are interesting and may have some value, but they are unimportant compared to the morality that makes our society stable, without which a new Dark Age will spread over Éra that will make the last one seem glorious. That is the lesson I have learned from the last year, Your Majesty.”

Jésunu sat to a loud chorus of conversation and a few cheers. Several had raised their staffs during the last three speeches, and the queen’s steward had many names on his list. He recognized Mitru of Ora.

“Your Majesty, Ora has had a glorious harvest this year and we have praised Esto specially in his temple in our city. It is our intention to make special sacrifices to him in

his house here in Mɛddoakwés as well, and those sacrifices will be led by my son, Mitrubbaru, once the crush of visitors abates.

"Mitrubbaru has much reason to sacrifice because he has been blessed by a special education. He is one of the twelve young men from Ora who spent three months at the Mɛlwika Génadɛma learning the new knowledge as well as much old knowledge they did not understand before. I have seen my son for the last six days since he completed his study and I have been deeply impressed by the changes in his character as well as in his understanding of our world. I anticipate many new blessings coming to Ora this year from the Mitrui Génadɛma we will inaugurate immediately in our city."

That generated discussion as well. If the Lords of Mɛddoakwés and Ora were behind something, it had considerable momentum. But that did not forestall opposition. The steward recognized Isursunu, chief priest of the temple near Isurdhuna. All turned to him as he rose in his light blue robe, the color of a chief priest.

"Your Majesty, Isurdhuna is the ancient heart of the life of the Eryanɛ and of all we know," he began. "The Rudhiser is our heart river and it drains our heartland. It flows past the last home of the great Widumaj, where he breathed his last breath and where thousands flock every year to pay him their respect. There, we have been memorizing his hymns since they were first sung. Your Majesty, we know the inseparability of prayer, singing the hymns, and sacrifice. I fear terribly for our land. Six hundred years ago our society was rotting away from its own corruption. It needed new knowledge, so Esto sent Widumaj. We now have Widumaj and his new knowledge. We do not need any other new knowledge. New knowledge can only take us away from the truths we already have, and that means a loss of guidance. Loss of guidance means a return to the rot and confusion

we had six hundred years ago. Why do we need this? Why would we ever want this? Why do we not stick to what we have, for it is truth and the right! Thank you, Your Majesty."

There was another chorus of cheers, and a few even banged the butts of their staffs on the floor. Then Gawéstu rose. He had no staff and wore the simplest white robe, a bit old and tattered. He was barefoot and his white beard extended almost to his waist. But the act of rising caught everyone's attention.

"Your Majesty, may I speak?" This was a direct request to the Queen, not rhetoric. Only the greatest widu of the generation could interrupt the order of speakers and speak without a staff.

"Yes, honored Gawéstu, you may speak," replied the Réjé.

"Thank you, Your Majesty." He paused to size up the audience, which had now fallen completely silent. Gawéstu was no ally of the priests, though on occasion he defended them. No one knew what he would say because he was known to speak his mind. "There is wisdom in Widumaj's words, as well as his hymns, and a well-known saying of his is 'seek ye wisdom anywhere it can be found, whether Sumilara or the Spine Mountains.' He mentions both the center of the old world and its most isolated place. Both are places inhabited by people whose wisdom we habitually question. We must follow this wisdom of our prophet and that means embracing new knowledge. If Widumaj's hymns contain the truth we need to build our kingdom, new knowledge cannot harm it." Then he sat.

There was silence for a moment. It was always difficult to contradict any widu, let alone the greatest widu. "What you say, as always, is wise, Gawéstu," concluded the

queen. “And that is why we have followed the development of the génadɛmas closely, and welcome the creation of two new génadɛmas.”

Chris went home for dinner that evening, skipping many invitations to smaller gatherings. “Kandékwɛs advised against all private invitations because of the danger of poisoning,” he explained over the supper table. “He has invited me tomorrow night to his home, though, and Wɛrétrakɛstɛr has invited me to another gathering. Half the court is socializing, tonight.”

“So what else happened?” asked Thornton.

“After the Queen’s comment? That took a lot of steam out of the discussion. There were allusions only, after that. The first day is speeches ostensibly about conditions in your home territory. There isn’t much business done. But tomorrow the Queen is scheduled to ask a question about six criminals condemned to die. Their cases will be debated and the Queen afterward will say whether they should be executed or not. She is not bound to follow the court’s opinion but usually she does. Then the questions get more abstract. The road-building will be discussed, probably the fourth day, because the army wants local lords to provide men and horses. The army wants to save its resources for building the road to the Spine. That discussion will get to our issues because the speed of the steam wagons and their advantages will be debated. Many will consider speed a disadvantage; it will mean the Queen can control everything more easily and directly. It will be interesting.”

“I am amazed the Court functions so much like a legislature!” said Liz.

"So am I! It was a concession wrung out of the Réjé's father. The Réjé gets to distribute the staffs—sticks with red tips indicating you can speak. Her steward is a conscientious chair; he controls the discussion fairly well, though he does steer it in favor of the Réjé's ideas. I first thought it was a sort of primitive House of Lords, but most of the speakers represent small places, like the Lord of Béranagras, who really isn't much of a lord. It's really more of a mix of House of Lords and House of Commons. It could evolve quite well into a real legislature over time. Thank God the Eryanɛ have something that gives them a consultative foundation."

"If the Régé were an absolute monarch I'd be a lot more worried, too," agreed May. "I wish I could see as well. There are real debates?"

"Oh yes! I saw several besides the one about us. The Réjé doesn't demote people based on their performance in the court, though I suppose if they were extreme she might. There seems to be a wide latitude for discussion."

"Wɛrétrakɛstɛr told our class once that the debates in the great court are the continuation of ancient tribal traditions," noted Rébu, who usually did not attend the family's dinner but had tonight because of his interest in the court. "Chris, do you think there will be any debate about the route the road will take? It's unjust as well as foolish to avoid Anartu."

"I agree with you. Perhaps Lord Gilran will raise it, but it would be difficult for him to advocate the rights of the Sumis."

"Could you raise the issue with Kandékwɛs?" persisted Rébu.

"I could, but the prejudice in the court being what it is, any argument will fall mostly on deaf ears. The court is not the way to change the decision. Talking to Roktɛkɛstɛr might work better."

"The only person who could raise the issue at the court is Gawéstu," suggested May. "But I wonder whether he would risk his reputation."

"Someone *must* raise the issue," said Rébu. "Why should the Sumis allow their rights to be trampled on? They have been trampled on for centuries. But if people learn to read and write they won't allow the trampling to continue."

"Maybe that's one reason Wɛrétrakɛstɛr and Mitru of Ora both say we will never get a génadɛma established in Anartu," added Chris. "Unless it teaches everything in Eryani."

"And how long could that last?" retorted Rébu. "Our language is as ancient—maybe more ancient—than Eryani. We won't give it up to please the Queen, especially a Queen that shows no love for the Sumis."

Chris looked at Rébu. He was both moved and repelled by the young man's passion. "Yes, I agree with you. The Sumis must have a génadɛma in their language, and they must have a good road and access to the rest of the world. And their rights must be respected. But at the moment the word *dɛksi,* rights, does not exist in Eryani, except for the few people who have heard it from us. It will be a long struggle to establish the idea, then enforce it."

"Will the Sumis wait?" asked Rébu.

"I don't know," said Chris. He turned to Thornton and Lébé in order to change the subject. "So, tell us about the hymn singing at the temple."

"It was great," replied Thornton. "The place was packed with over a thousand; it was quite a crush. Each hymn was sung by a priest, then the entire crowd sang it, then there was a break while sacrifices were performed to Esto—it's considered a privilege to sacrifice during the annual sing, so many do it—then another hymn is sung, etc."

"What's a sacrifice like?" asked Mary.

Thornton shrugged. "They pack them in, so there's not much time. Between three and ten people come forward to the altar while priests lead in their animals. Each person takes their animal's leash and says 'I dedicate this animal to Esto as a sign of my dedication to him and to his prophet.' Then the animals are led away—there's no time to slaughter them there because there are too many people present—and the sacrificers retreat back into the crowd. Then the next hymn is sung. They're lucky to get through three hymns an hour, because of repeating them twice and the break for the sacrifices. That's why the cycle takes three days. I'm told most people try to stay for the entire cycle; it's supposed to bring a blessing, and if you stay *and* sacrifice it's a special blessing."

"Not to mention exhausting," added Amos.

"It's helping me remember the hymns," added Thornton.

"Someone even complimented him on his singing," added Lébé. "We got into a brief conversation with the man, and afterward he asked Dhoru where he was from."

"He couldn't place my accent," added Thornton.

"Oooh, you passed!" said May with admiration.

"The man said I had to be a freed slave because my accent sounded like a mix of eastern shore accents."

"It should; Mɛlwika has immigrants from all over the shore," added Lua.

"And the dam, Amos? How's it going?" asked Chris.

"Well. The workers have last year's experience, and we have more materials and equipment. The penstocks will be finished in another two days and we will start piling clay and rocks on them immediately. The road along the top of the gluba has already been extended and the chute for getting rocks and clay to the bottom has been established; materials are already roaring down it and being distributed along the length of the bottom of the dam. The stone cutters are hard at work to make the new spillway; that will take at least a month, it's a lot of work. It looks to me that we will have the dam itself finished in three weeks, the spillway in four. The river is turned off right now, but we'll be able to let water through the penstocks in another two or three days, so irrigation and waterpower for the mill will be restored."

"Good. Miller is pleased?"

"He's thrilled, especially at the prospect of electricity in three months."

"Excellent," said Chris. "It's amazing what we've been able to do in sixteen months."

The steam tractor rolled to Mɛddoakwés soon after dawn with a wagon filled with people, including Chris, Rébu (who was visiting with friends attending the Grand Court), Thornton, and Lébé. Chris was in the court when the second day's session began.

Since almost everyone who wanted to give a report about his own village or town had done so, the next day the discussion did not begin with stories of home; they started

with a neutral observation and then moved to the topic the speaker wished to discuss. That was the etiquette of discourse on day two.

It was soon quite noticeable that quite a few speakers had decided to comment about the importance of sacrifice. Priests representing temples in Ora, Néfa, and Bɛllɛdha stood to speak, as well as the Lords of the last two places. Chris stood against the wall, listening, puzzled by the seemingly pointless speeches being made. Then Kandékwɛs sent a messenger over to him, who led him to the door where Mɛddoakwés' Lord Mayor awaited him.

"They're very clever," he began. "They want to shift the entire discussion to sacrifice and then get everyone to go to the temple to sacrifice. Are you willing to sacrifice?"

"Yes, I will. As I understand it, one buys an animal and then pledges it to Esto, right?"

"Yes, and sometimes the priest asks you to pledge it to Widumaj."

"I can do that. I believe Esto sent Widumaj to this world. That's why I have such respect for his words."

Kandékwɛs smiled. "Excellent! Can you afford a big, beautiful animal? Perhaps five lɛdhay?"

"Yes, of course." That was almost two year's income for a typical farmer.

"Thank you." And he hurried away, quite uncharacteristically without saying goodbye. He nodded across the room to Wɛrétrakɛstɛr, who raised his staff. No doubt others in the room noticed the exchange; others raised their staffs as well soon after, keeping the royal steward busy recording names.

It took almost half an hour to get the floor. The first speaker complained about the need in his district for a dam to store water; everyone had heard about the dams upstream of Mɛddoakwés and wanted one for their area. The next speaker talked about the need for a new blacksmith in his village. The third praised sacrifice again. The fourth rose to further the discussion about sacrifice.

"Your Majesty, this discussion about sacrifice has moved me deeply," he began. "It is such a great gift from Esto, that we can actually give something back to him. I am therefore moved to pledge the best ox I can find as a sacrifice to the temple here in this city."

That created quite a stir. One could anticipate that the speaker's order would break down under such circumstances as representatives pledged themselves to sacrifice. But Wɛrétrakɛstɛr had the floor next and immediately stood.

"I wish to propose a sacrifice," he quickly added. "All are invited to join us this afternoon after the court is adjourned for the day. My students in the Mɛddoakwés Génadɛma will join me in sacrificing at the temple to Esto. I challenge the Mɛlwika Génadɛma to do the same."

Chris was surprised by the form the request would take; he thought he would just join a group, and perhaps his name would be mentioned. Instead, all eyes turned to him, including the Réjé's, and her eyes seemed to demand a response from him.

There was silence, also. Mennea broke it with, "may I speak, Your Majesty?"

"You may respond to the challenge, Honored Mennea," replied the queen, reminding him that he was not a participant in the discussion.

"I would be honored to lead my students in a sacrifice at the temple with Wɛrétrakɛstɛr and his students this afternoon."

That generated quite a bit of discussion; apparently the priests had assumed that if they got everyone in the court to want to sacrifice, Chris's absence would be palpable. Wɛrétrakɛstɛr had turned their game around.

The discussion, therefore, continued to focus on sacrifice, with representative after representative standing to say he would go as well. Finally Gawéstu ended the speeches by praising sacrifice and saying that other actions were also called for, like helping the poor. And he called for a hymn.

At lunch Chris went out of the court and called home on his phone. Wɛrétrakɛstɛr and Kandɛkwés made it clear that the more lavish the sacrifice, the better; it would show his piety. Furthermore, a huge flood of sacrifices would make the priests feel better about their role in society and in the court because it would bring them much money. He asked Behruz to drive down in a rover right away with ten lɛdhay—about a fifth of their entire wealth—so he could plan a rich sacrifice. With that money he was able to buy two animals and could dedicate the second one to feeding the poor in the city, which was even better. In addition to hordes of people, Mɛddoakwés was overrun by hordes of animals, brought to town for sale to sacrificers. There was also an enormous meat market where fresh cooked meat could be purchased very cheaply. The Eryanɛ had a very primitive system for smoking meat and no other way to preserve it for more than a few days, so all of it had to be sold and eaten quickly, though when Chris saw Miller briefly he asked for the phone to call his sons and prepare the ice house for surplus meat. He planned to make some money as well.

The afternoon court seemed anticlimactic; everyone was waiting for the adjournment, even the Réjé. Soon after the bell in the marketplace struck three—a new innovation in itself, and already widely used by many people to plan their day—the Réjé rose. “Let us adjourn early today,” she suggested. Then she walked out. The steward adjourned the gathering until the next day.

Chris walked over to Wɛrétrakɛstɛr, who was already by the door. “What do we do now?” he asked.

“We go and sacrifice. Will your students be there?”

“As many as we could round up in a few hours.”

“Good. May our sacrifices take a long time to complete. Let the skeptics wait.”

They walked to the Temple along with about three hundred others. The temple was packed with students, bystanders—many wanted to watch the gɛdhémɛs sacrifice—and a few local citizens who had managed to stay in spite of the effort to clear the crowd out. Thornton was there and made sure the two animals were in the holding area. His job was to make sure they were brought in at the right time.

Wɛrétrakɛstɛr went first, chanting a hymn of Widumaj and then having his animal brought in. He gave a speech dedicating it to Esto and his prophet Widumaj, then sprinkled the animal with a bit of water mixed with cow’s blood. It was led out to be slaughtered later; the temple’s slaughterhouse was already full. Then eight of his students followed, one by one, each offering a short statement of dedication and a sprinkling his own animal with the blood-water.

Then it was Chris’s turn. He had not memorized hymns the way Thornton had, but he had the written text before him, and he had a reasonably good singing voice. He sang a

hymn in his own way. It sounded a bit like an aria from an Italian opera—he was an Italian, after all—and when he finished the audience murmured approvingly.

"We dedicate this ox to Esto, the great, the all-seeing, the all-knowing, the ever-guiding, the wise, the merciful, and to the Sacred Being, his great widu," he announced. "It is but a small token of our dedication; may it represent the dedication of our lives in his path." Then Chris dipped his hands into the cup and sprinkled the ox with blood-water.

The ox was led away, slowly because it was a difficult beast to control. A large, fat cow came out next, led by Thornton and two animal handlers.

"We dedicate this beast to the poor," added Chris. "To feed them, bring them comfort, help them find prosperity, and to lead them to truth. May Esto bless them, and may our work on their behalf multiply." He sprinkled the cow with the blood-water.

Two separate sacrifices could warrant an extra hymn, and Thornton knew it, so he began to chant a different hymn, shorter, but in standard Eryan style and without notes. He had helped Lébé create the written text and knew the hymns well; he had quite a few memorized. He also had heard the hymns sung daily in Wɛrétrakɛstɛr's classes. He knew exactly how to chant them and the audience was profoundly impressed.

Then twelve students of the génadɛma came forward, one by one, leading in goats, sheep, small cows, even a horse, dedicating each to the poor, or to Esto, or to education of the city's children in the hymns of Widumaj. They spoke briefly but eloquently; a very moving scene it was.

People began to drift out of the temple as the various aristocrats began to offer up their sacrifices, one by one. Chris, Thornton, and Lébé stayed two hours and saw only

about half of them; the list was long and many lords wished to make small speeches. It was a remarkable sight.

They hurried to the Lord Mayor's for supper. Kandékwés greeted them privately before welcoming them into his great hall.

"A great success, a great success!" he said. "You were very impressive; both of you. And your students made quite an impression as well. Wɛrétrakɛstɛr is very pleased."

"What did it do, Lord Mayor, if I may ask?" said Chris.

Kandékwés smiled. "I'm sorry, you don't know the politics completely. First, today the priests in Mɛddoakwés received as much income as they usually can get in half a year. That will please them greatly and demonstrate to them that their influence is not waning, and that's one of their biggest concerns. While they often act on what they see as a principle, they also act out of self-interest, and we have solved that to some extent. They will now have to reciprocate in some constructive way and spend some of the wealth they just received. Probably, that will mean they will open some schools for children, since several people dedicated their animals to that purpose. And their schools will want books, so you may find them approaching you for help.

Second, your speech and chanting showed many that you respect our ways and love Esto. That is very important; it makes your strange ideas seem more acceptable. That will also help in the future. It also demonstrates that your students are not negligent of religion, which refutes the charge that your education harms piety.

"Yes, those are very important accomplishments."

“Thank you; I now understand,” said Chris. “As a gift to your gathering, we have brought several large jars of jam.” He used the English word, as Eryani lacked it, and pointed to a large sack Thornton was carrying.

Kandɛkwés’ face lit up. “Ah, it is famous! Thank you, we will put it out and show the guests how to eat it. Now they can taste progress, as well as debate it!”

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