

NATURAL ADVANTAGE

by Lester DeS Key

*One does not see many stories from Lester Del Key these days who is more apt to be found exercising his ability as a book critic for Analog and as an advisor on fantasy for a paperback publisher. So this one comes as a special treat—written for the fiftieth anniversary of the oldest American sf magazine—and deliberately recreating the good old-time premise of Man the Unbeatable. It's short, it could have been a novelette, it could even have been a novel, but Del Key says it **all** in an economy of space. "Up Terraf*

Star captain Anthon Sef sighed heavily and put down the trinoculars through which he had been staring. Seemingly above him, the pitted, airless satellite of the clouded planet glared coldly. He shut his eyes to rest them, then turned back to his control seat.

"No evidence of mines or colonies," he said. "If they have space flight, it must be in its infancy. That is, if there's any intelligent life at all on the primary."

"But the radio signals!" Timas Biir protested.

Theoretically, Biir should not have been in the control room; he was only cook and general handyman. But the engineer Sef had drawn for this trip was too taciturn to be company. The captain stared at the little man, surprised at the eagerness on the other's face. Biir was almost an anachronism, a left-over from the ancient family of heralds. Over his short snout and just above his third eye was a bulging forehead that held his enlarged speech center, a reminder of

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the days when there were a hundred languages on Ruum and a herald must know them all.

Sef nodded slowly. "Yes, the radio signals." He shrugged and set the controls to take them close to the primary while Biir picked up the trinoculars and stood staring through the transparent wall of the control room.

The doubly-damned radio signals! Sef sighed again. One of the exploring ships had spotted a cloud of anti-matter particles heading for a G-type star and mapped it as routine. It was only when they were heading away that they had received faint radio signals that might indicate intelligence on a planet around the star. As a result of their report, Sef had been ordered to detour on his trip to the farthest colony, adding a year to the fifteen the trip already took—almost a tenth of a lifetime.

Maybe he should have turned down the job, most star captains refused the long voyage. But it meant promotion above what his equal time in normal voyages would have brought.

"See anything?" he asked. They were approaching the planet now, making an easy half thousand miles a second.

"Lights maybe, on the darkened section. I'm not sure," Biir answered. Then he gasped faintly. "Wait—a moving glint! Outside the atmosphere!"

Sef set the controls to bring them to a halt and took the trinoculars. The precise wording Biir had used gave the velocity and curvature of the thing he had seen, and it could only be something orbiting the planet. The captain followed the other's pointing finger. The glint was showing clearly now, indicating something that was reflecting the sunlight as metal might do. His mind delineated its orbit, but he checked it, setting the delay line in the nerves from his third eye to longer and shorter time span. Then he went back to the controls and set up a course that would match orbits with whatever was there, slightly more than two hundred miles above the planet.

As they drew nearer, Sef could see that it was clearly an artificial satellite, shaped like a doughnut and spinning on a hub. Biir's exclamations drew Nuran Velos from the engine room to watch. The engineer scowled, pointing to the hub. "Control rockets. Look chemical. Primitive!"

Sef grunted. Primitive or not, it meant space travel of a sort. And his orders were to warn them, in that case. The cloud of anti-matter

would begin striking their star in about ten more years, setting to blazing so fiercely that no planet could support life. Excitement over the possibility of finding the first alien intelligence had run so high in the Council that a rescue mission had been considered. But too few ships were at home and the needs of the farthest colony had prevailed. Still, the aliens had to be warned.

Across the control room, the radio broke into sudden loud noises as Biir fiddled with it. The little man began yelling into it, though no real communication was possible. Sef could see no sign of weaponry, but he approached cautiously until he had matched course five hundred feet below the hub. After that, there was nothing to do but wait.

It was nearly two hours later when the hub showed activity. Something opened and a figure came out in a space suit, carrying a hand rocket and trailing a line behind. Two arms, two legs, a bulge for a head—the simplest way for evolution to produce an intelligent land-dweller, of course. Shorter than the men of Ruum, but not greatly so.

Velos went to the emergency airlock and began opening the outer flap. The figure changed course to reach it, stopping to fix the line before entering. The airlock cycled, and the creature moved into the control room, carrying a box and studying a set of dials. It nodded, threw back the helmet and began removing its suit, its attention never wavering from the men of Ruum. It wore some kind of artificial covering, probably because it had hair only on top of its head. The naked skin was pinkish tan instead of a proper dark brown. There was almost no muzzle, and the nose stuck out above the mouth. But the shocking detail was that it had only two eyes in its small head.

"Mammalian female/" Biir said in amazement. "But only two breasts."

The creature looked at him, frowning. *"My name is Ellen Rich-ards, and Tm supposed to welcome you to our world/** she said. The meaningless sounds were in a voice with none of the higher tones of Ruumian; the fundamentals seemed limited to a range of only a few thousand herz,

Biir began trying to establish a few words with her, but gave up. "I don't think she hears half of what I say/" he commented. He triad to shift to her words, frowning as he attempted to make sense of them.

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Then she stretched her mouth into an upward curve and held out a small dial on her wrist, pointing to the hands that circled it and making motions. She pointed back to the satellite, motioned over the dial, and made a sweeping gesture. Even Sef could see she was indicating that she'd leave and be back in— hmmm—about three hours. Their time units were shorter than his, but not hard to translate roughly.

There were a lot of signals in various radio frequencies going on between the satellite and the planet after she had gone. Some decoded to the sounds she had made; others on different frequencies were meaningless to Sef. He gave up listening when Biir brought in lunch.

Establishing communication was going to be a problem, Sef realized. Well, that was why Biir had been sent on this trip; he had the brain development to handle language skills and memory. Sef forgot about it and turned his thoughts to the strange creature with only two eyes. Twol Enough for spatial depth perception, but not for time depth perception. Without the third eye and the brain development that integrated the extra, delayed vision, they could never see movement, never detect the exact curvature of the path of an object thrown at them, never determine precise velocities. How could such creatures have survived through their early development? They were a race of no real vision!

The female returned at the promised time, pulling a much heavier cord with her. Two others followed, and they began dragging boxes across space before entering the airlock. Once inside, she removed her suit, but they merely piled the boxes on the floor, stared at the Ruumians, and motioned that they were leaving. Males, Sef decided, wishing he could see their anatomy; but the coverings they wore in place of hair would have prevented that, anyhow.

The female opened one box and began lifting out volumes of bound sheets, all covered with marks in columns. She pointed to the radio that was faintly humming, then at the sheets. Sef considered it, then nodded, remembering with surprise that nodding was a gesture she had also used. It seemingly had meant the same as his, surprisingly. Anyhow, apparently she was trying to indicate that the printing on the sheets had been sent by radio from the planet and executed on the satellite. Sensible. So now they had a word list, for whatever good it might do.

Another box contained reels of tape. Velos examined it and nodded. "Magnetic film, I think. Too wide. Primitive."

The last box held a machine, about a foot square and two feet high. There were switches and other indications that something inside was probably electronic. But above it, where dials should have been, was a strange blank face of glass. With a decent keyboard and numbered dials, it could have been a calculator like the one Velos used to solve arithmetical problems. She placed it on the table, inserted a reel, and pressed a switch.

Sef jumped, sucking in his breath. Where the blank glass had been was a little man of her race, not ten inches high! It wasn't a doll, either; it moved like a living thing. "One" the box said. "One and one are two. One and two are three" With each word, the top of the glass showed characters like those on the pages and the little man illustrated with his fingers.

Then Sef saw his mistake. There was time depth, but no spatial depth. It was as if a draftsman had drawn a schematic diagram of a creature for some odd reason, then filled in every detail of tone and color on the paper, and somehow made it move!

Velos shoved the captain aside and stared at the thing. For the first time, the engineer was clearly struck by emotion.

The female drew the hair ridges over her two eyes together, then reached to shut the machine off. She took something from a large pocket in the stuff she wore over her skin and held it out. It seemed merely a scrap of the odd paper on which the words were printed. The Velos turned it over and swore in amazement.

There was no depth, no movement. But when Sef closed his upper and one side eye, it began to make sense. It showed one of her people. But it was only fractions of an inch thick! "Picture" the girl said.

Bibir examined it with less surprise. "I've heard of draftsmen who play around with things like this experimentally. But the results always look flat and dead when they sketch anything but the simplest things. So does this, of course. But such detail!"

The female's eyebrows were still together, but she motioned to the machine, resetting the reel. She took the first volume and pointed to the words as the machine started from the beginning. Bibir moved beside her and followed her motions carefully as she demonstrated the

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machine. When he nodded, she indicated the dial on her wrist again, then pointed to the airlock.

After she left, Bibir stayed by the machine, sounding the words and studying the printed sheets. Several times he reset the tape. Then at last he put it aside and began on the next.

Sef left him alone with his job, trying to figure how they got the moving "pictures" onto the screen; it was too much for his imagination. For want of anything better, he began following the language lesson as Bibir went back to the first reel again.

"Impossible," Bibir said finally, as he reluctantly turned off the device and sketched his tired back. "Sef, they don't have any tense in their nouns and adjectives. Even the verbs have only past indefinite, present indefinite, and future indefinite. There is no real time sense at all. And yet, it seems to work. And the words! They make one word serve for every condition of a knife. One! Not a separate one for each type of motion of the knife. They must get by with less than five thousand basic words!"

"How many do we use?" Sef asked.

Bibir thought it over. "Half a million basic, perhaps. A cultured man uses seven or eight times that many, counting all the finer shades. A good herald used to know a million in twenty or so languages. Sef, I can memorize these overnight!"

Sef nodded doubtfully. Even he, who hadn't finished language school and hadn't been permitted to begin his other education until he was eight years old, could force himself to learn a few thousand a day. He got up

and started for his cabin to get some needed sleep, then he swore to himself and joined the cook again. The language was even crazier than Biir had said, but there was something fascinating about it. Finally, though, he gave up and left the little man busily hunting back and forth among his reels.

When the female came back on the next shift, she looked at the mess of reels beside Biir and gasped. "What in *hell* did you do? Start from the wrong end?"

"*Hell* was not among the words," Biir said. "I did the—those things—from the top to the bottom the first time."

Surprisingly, Sef could understand. The words came too fast for him to follow easily, but he managed. It was worse than trying to talk baby language—but **sense could be conveyed. He** fumbled

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through his memory. "Why had you—you men things—this ready? Expecting—expected you as men things?"

She stared, then lifted her shoulders. "It was some project a student—a student in final education—did to get his degree—his right to be a teacher. We had the program sent up from Earth. It is called 'an attempt at devising a program of language instruction for hypothetical aliens'—or some such."

Biir apparently understood enough of it to translate. Sef hesitated. Obviously, they could exchange information, and it was now his duty to issue his warning and leave. But somehow, passing on the message that would doom most of this world—and probably the female—didn't come as easily as he had thought.

Velos gave him an excuse to ponder further by demanding to know how the pictures appeared on the screen. Sef listened absently as Biir struggled to translate. Apparently the fact that the creatures could see no time depth made them fond of images of themselves that no Ruumian could accept—dead, frozen ones. That led to photography. And when they had radio, they wanted better. As a result, they invented television and videotape. He filed the words in his memory.

"All that in such a little box?" Velos asked doubtfully*

"Heavens, most of the box is empty!" She pulled her eyebrows together, then began trying to explain how thousands of transistors and other parts could be put on a tiny chip by things called photo-reduction and photoetching. More pictures!

She gave up when Velos wanted more details. "You should talk to the scientists, though maybe I could get you some books from the library. I only work in administration/"

Sef sighed. He could put it off no longer. "Scientists? Men that look at stars, think how to go through space?" She nodded, and he stood up. "Then take me to them. I know bad things about your star. I must talk with scientists!"

She seemed doubtful at first, but as Biir passed on a little more information, she nodded. It would take time to get the scientists together. She would give a signal from the hub of the station when everything was ready.

Velos watched her leave and turned to Sef. "I want to go with you." He listened to Sef's refusal unhappily, but nodded. Someone had to stay on the ship, and Biir was needed to translate. "Then get

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me those books she mentioned—all you can. Somehow I'll learn to read them I"

Sef and Biir were already suited up when Ellen's signal came. They pulled themselves across on the line and followed her through the airlock. Inside, there was a strange odor. Well, if she could breathe his air safely, hers should not harm him. He followed her, studying the alien technology as they passed upward through the station. Maybe Velos should have come. But that could be remedied later.

About twenty of the creatures were waiting, a mixture of male and female. Ellen silenced them and led Sef toward a position at the front of the crowded room.

He gave them the message and the facts, undiluted. The great cloud of anti-matter would strike their star in ten of their years, triggering it into dangerous activity; and some of the cloud would strike their atmosphere, causing lethal amounts of gamma radiation. He gave them the readings of the first ship to discover the cloud, and tried to explain why his people could do little but warn them. There was no way to send a signal across more than a hundred light years of space, nor did they have ships enough to rescue this world.

"Your ship is here!" someone yelled, and Sef had expected it.

But another man rose quickly. "We know the size of that ship. We couldn't put more than a hundred people aboard with supplies to last a year. That's not nearly enough to insure a gene pool that has a chance of survival for the race. And damn it, I resent having the suggestion made to a—a man who has come here to warn us!"

There were cries of what must be approval. There was no panic, so far as Sef could see. Maybe there would be when the general population learned the truth, but these were highly trained and self-controlled individuals.

Eventually, he had answered all their questions as best he could. Some of them were already leaving the room as Ellen led Sef and Biir away.

Back on his ship, Sef sat trying to sort out what he had learned and raging at his futility. He had found himself liking and respecting those beings. The idea of having the first intelligent race his people had discovered die before they could meet properly was unthinkable. Yet it was hopeless.

The aliens had only rockets, powered by chemical means now. And

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while Sef had learned they had crude fusion power, they had **no** good way to apply it as thrust.

Damn it, as the man had said, it was unfair! His people **were no** better than these, probably—certainly no more intelligent.

Yet his race had been given a natural advantage these beings could never have. His kind saw time and evolved complex brain structures to utilize that sense of time because some three-eyed ancestral form had survived eons ago. It was because of that gift that they had been able to develop the exchange forces that held time inside their ships to the normal rate, while distorting it externally until their ships could cross space twenty times faster than light. And it was that natural advantage that had let them learn the nature of time in **the** atomic nucleus, to turn all of any mass into pure energy.

By the Ancient Dust, if it could have helped them, he would have dumped his cargo and taken all he could to the nearest habitable planet—the colony world toward which he was headed. Then they could have killed him on the colony, if they liked; **a race was more** important than one man!

Velos came in on his dark mood, asking if he had **secured any of** the books. Sef started to brush him aside.

Then he swore, and made up his mind. "No, **but** you'll **get them**— everything they have," he promised.

It couldn't help the race of beings who called themselves human. There wasn't time enough. But it might give them hope **during the** ugly years when they needed it. He could do that much, **at least**. And if the Council disagreed with his decision, let the Council do what they liked to him.

Sef had slept and eaten when a delegation came to his ship. **There** were only three of them, and one was the man who had rebuked **the** other.

"We've checked discretely," that man—Brewster, he called himself—announced. "And we've found more evidence than we like. **There** have been reports of strong X-ray emissions in the area where you place the cloud for several

years. Probably caused when **it hits the** dust in space. And it's moving as you said. Now, how much **can** you tell us—or show us—of your ship? And can we **build ones much** bigger?"

"You don't have time enough!" Sef protested when **it had been** translated. "Even experts take years to build one ship."

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"When there's no other solution, we'll make time!"

Sef nodded. Now he should explain enough of the time fields to show them how impossible it all was. Or he should promise them, and then flee into space. The Council would never approve of any other decision.

"You can't build bigger ships/" he said at last. "We've tried, and the fields we use simply collapse beyond a certain size. But while I don't know enough to help you, I carry a good technical library on board. I'll trade you my books for yours. But I warn you that our language may prove impossible for you to learn."

Another man grinned suddenly. "Translate your thousand most important words and we'll dig the rest out with our computers. Give us your basic mathematics, and we'll solve the rest."

Biir looked at the captain sadly when the men were gone. "You will regret that," he warned.

"Would you have done otherwise?" Sef asked, and there was no answer.

Later, boxes of things called microfiche copies and readers for the three of them began coming from the station. Men came aboard with equipment and began making microfiche copies of the ship's three hundred odd volumes, while Biir and Velos slaved over the word list and mathematics introduction. There were far more books from the station than Sef had thought possible. Some were stored in an empty fuel hold, but the control room was still littered with boxes.

Brewster came last, and Sef let the man take and squeeze his hand in a gesture that was obviously meant as friendship. Then he went to the control board and began setting up their course for the colony, more than two years away. There was still ten years of traveling before they would see Ruum again.

At least, they would be less bored than usual. Velos was already moving toward the thing with the screen, to attempt learning enough English to read the technical books. And he and Biir could learn to read the others. It would keep them busy. And if the race on the planet behind them had to perish, at least someone would remember them and carry back their records to be preserved on Ruum.

By the time they reached the colony, they had decided to use nothing but English among themselves; it was not as bad as it had seemed. Only rarely was it necessary to resort to Ruumian words to

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express some exact meaning. And such use increased their fluency. It came as almost a surprise when they landed to hear again the speech of Ruum.

There were more shocking things, however. The colony was going sour. The land under cultivation was hardly more than that shown on the maps of a century ago. There was barely enough of the needed silver mined and smelted to fill the hold of the ship. And the men were sullen, grumbling about everything; some even tried to bribe Sef to take them back with him.

The colony was too far from Ruum, and the ships that offered the only communication were too rare. Anyhow, Sef suspected that the men who had volunteered to come so far away from their native world on the first three fleets had not been the most suitable ones. There was no pride in them now. They were uncurried and most of them stank of accumulated dirtiness.

It was good to watch the world fade behind them and head directly toward Ruum. The three men settled back into their routine. Sef still had a long ways to go before he could begin to appreciate the material that was supposed to be fiction. The history books had been hard enough.

Biir called their attention to the date at dinner. The ten years had passed, and the cloud must be striking the star the men called the Sun. They ate little that time, and Sef spent long hours afterward staring at the star of Ruum only

months ahead of them. Finally he found a novel on the last days of Pompeii. Somehow, it was much easier to understand than on his first reading of it

By the time they were within radio hailing distance, they began packing the microfiche boxes and trying to tidy up the control room for the routine inspection that would follow the normal perfunctory acknowledgment and congratulations. Ruum had known space flight too long to be excited. They were assigned their orbit around the planet and told to wait. And the waiting dragged on, which was not normal.

When the little ship drew near them and began to match orbits, it was not the regular type of inspector's gig, either. Instead, it was a two-man ship, and it carried the bands of distinctive color that could only be used on the specials assigned to members of the Council.

"Damn!" Sef said, the word coming automatically to his lips now.

Biir stared out at the ship as it matched course and began sending

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out a passenger tube toward their airlock. "They couldn't have learned about your decision, Sef. That's impossible. It must be some special inspection."

Sef nodded, unconvinced. He'd thought on numerous occasions of what he must tell the Council about his turning all their scientific knowledge over to an alien race. But his plans were still unformed. Perhaps there was no way he could justify it

The airlock cycled, and a short figure in an alien space suit entered, beginning at once to remove the helmet.

"Ellen Richards!"

"It's Ellen Farnum now," she told him. "I got married. Sef, it's good to see you again."

He let her take his hand and squeeze it, staring at her, puzzled vaguely by her accent. Then he realized that the accent must be his, not hers.

"You built a ship," he guessed at last. "But so quickly . . ."

She nodded, making a sound that his reading told him must be laughter. "Well, let's say we converted a ship. It's over there, in a Trojan orbit with your little moon. You know about such orbits?"

"Equilateral triangle of two satellites to the primary," Velos said.

She nodded. "Over there. You can just see it shining, if you know where to look. We hollowed out an asteroid named Juno to give us living quarters and came in that. And that gives us all the fuel we can ever use to drive it. After all, it's more than a hundred miles in diameter. Of course, your Council was a little shocked when we first took up orbit. But once we got into communication with them and they picked up enough English to begin exchanging knowledge, they were delighted. One of them sent his private ship and chauffeur to bring me out. I was determined to be the first to greet you."

Sef held up a hand to stop the flow of words that came faster than he could assimilate, but it was Velos again who interrupted. "Impossible. No field can cover such a diameter. It—"

"Not the field you used, of course." She frowned a moment. "All right, I'll try to explain. After we had a chance to learn your time theories, we found we had a big advantage over you. The way you see conditioned you to think of time in only one way—sort of in pictures. It was like the men who tried to understand the atom by picturing it, which won't work. So we, working without any preconceptions, found other ways of treating your theories. The one we found

gets better as it gets bigger. And faster, too. We made the trip **in four** months, taking it easy."

"With how many people?" Sef asked. He was **remembering** Brewster's statement about the size of population needed to keep the gene pool of the race at a survival level. But with a whole planetoid to carry them here, there could be far more than enough people saved from the disaster of their world.

Her answer surprised him. "About eighty."

He sighed, and heard Biir's echoing sigh beside him.

"Only eighty—out of all your billions," the little man said softly.

She stared at them as if unaware of their meaning. Then she laughed again, easily, without a tinge of sorrow.

"Oh, I see. No, this was only a little trip to establish relations with your world—and to thank you, Sef. We moved Earth, the **Sun and** the planets out to a safe place almost two years ago."