

The Sins Of The Fathers - Part I of IV

Stanley Schmidt

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When we finally jumped back into normal space, the three of us uncovered one of the big ports and gathered around it, drinking in the stars with a sense of relief and exhilaration I can't begin to describe. I'm a stable man—otherwise I wouldn't have had a chance at this job—but nobody can spend two months in a tin can, cut off from all direct evidence that the rest of the universe exists, without its getting to him at least a little. So it was a great feeling to be back among real, glowing stars.

Of course, the stars themselves reminded us we were a long way from home. The constellations don't change quite as much as you might think in a hundred and thirty light-years, but they change a lot—enough so we couldn't find any part of the sky to feel at home with. And the thought that we had, in a sense, also gone a hundred and thirty years into Earth's past didn't help us feel any less isolated.

For a moment I almost grasped the full reality of our situation, and I shivered a little. Dirk Borowski, the skipper, felt it too. "The mind boggles," he said, very quietly. "Three of us out here, over a hundred light-years from any other member of our species. And some of them are star-hopping too—though closer to home. Who would have thought we'd be so far so soon?"

We were silent-for a while. Then Lewiston, the astronomer behind our mission, slapped both hands down against his sides as if to shatter our mood and turned away from the port. "Well," he announced, "we're here and we have work to do. I hope your timing was good, Skipper." And he walked briskly away to start his observations of S Andromedae. I never got any idea how much he shared our feelings when the stars came back. I'd already learned that he kept any feelings he might have neatly hidden behind a perpetual grin that reminded me of a mild-mannered Cheshire cat, and this was no exception.

I followed him across the cabin. He stopped and activated a large curved screen. Mostly, it darkened, but pinpoint images of stars, accurately brightness-coded, sprang into being all over it. I checked the automatic instruments that were to carry out a dozen other experiments, then activated another screen similar to Lewiston's. It would show me the entire sky either as we actually saw it from here or as astronomers on Earth had predicted we should—and by asking the computer to compare the two views and point out discrepancies, with little red circles on the screen, I might discover significant things never before suspected.

There were three red circles, and one of them, in a region of dense star-clouds, I couldn't explain away. "Dr. Lewiston," I said, "I've found an anomaly."

"Just a minute, Mr. Turabian. I'm busy right now." While I waited, it seemed to me that something about the anomaly's location should be ringing a bell in my mind. But I wasn't used to seeing the sky from this viewpoint...

When Lewiston saw it, his grin seemed to increase a little—although changes in it were always so slight as to be uncertain. "Interesting, all right," he muttered "Wouldn't want to get my hopes up, but it could be a fresh supernova right here in our galaxy. Even better than S Andromedae. Talk about serendipity!"

It was serendipity, all right, but not the way he was thinking. By that time I'd clarified in my mind what was special about the anomaly's position. "Do you suppose there's any special significance in its being in that direction?" I asked.

For a full second, his Cheshire grin deserted him completely. And that I found frightening.

—From the trip journal of Jonel Turabian

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I

Henry Clark, Lieutenant Commissioner of Grants, stood in the main cabin of the newly returned *Archaeopteryx* and watched, slightly dazed by the events of the last few hours, as two white-coated attendants led Donald Lewiston out into the Florida sun. The once-eminant astronomer looked only slightly more unkempt than before the trip, with the same plain and slightly sloppy suit and the same token collection of brown hairs plastered radially around his bald spot, but his face had changed immeasurably. There was a dazed blank-ness in his eyes now that was chilling to behold, and he let himself be led away with neither resistance nor cooperation of any kind.

Only minutes earlier, Clark had watched other attendants remove the corpse of Skipper Bocowski from the ship's freezer, cover it, and wheel it on a cart through the same door. And he still had only the dimmest possible understanding of what had happened.

For him, it had begun with the urgent message that the *Archaeopteryx* was on the verge of landing—and that Ship's Mate Jonel Turabian was in command and wanted to see Clark and nobody but Clark when he arrived. Now Turabian emerged from the automatic debriefing chamber that had been brought aboard and said quietly, "I'm sorry this has to be your first look at our triumphant return, Mr. Clark. I guess you can see now why I didn't want anybody coming aboard right away except you and a few attendants you could trust."

Clark nodded absently, noting at the same time that his glasses were pinching his nose and he would have to get them fixed. "Yes, of course. Quite a mess. I'm still not clear on what, happened. You say Dr. Lewiston went berserk and attacked Borowski?"

"Yes. From behind. With one of our bulkhead tools, which is basically a very big wrench with several special-purpose attachments." Turabian, young, slender, and dark-skinned, was carefully and thoroughly conditioned both physically and mentally, and Clark envied his calm self-control under the present circumstances. Of course, he had had a lot of time to adjust to them... "I managed to pull him off and subdue him, but too late," Turabian said.

"A pity," said Clark. "You tried, anyway. What do you suppose happened to unsettle him like that? Lewiston, I mean."

Turabian shrugged. "It happened in super-c. Can you imagine what that's like? When you're going faster than light, you can't see any of the normal objects. And if you look out a port, there's nothing there. Absolutely nothing. So you learn not to look out ports—but when you're in super-c week after week without a break, you're likely to think about it now and then. The Rao-Chang drive is so new there's no medical data to back me up, but I'd bet that that feeling of isolation can be rough on the marginally stable. And I'd say Lewiston fit that description. I guess it just got to him."

Clark raised an eyebrow. He was unused to hearing one of the world's top astronomers described in such terms. "Oh?"

“I’d say so. Did you know him, Mr. Clark?” “Slightly.”

“You may have noticed his facial expression. He grinned—always. It wasn’t an unpleasant grin, but it was always the same, so you could never tell what he was thinking. I think it was a mask he cultivated deliberately. He always seemed unemotional, but I’ve got a hunch that a good deal went on inside, with a tight lid on it. The grin was all you saw until the lid blew—but if there was enough under the lid, it might not take much to blow it.” Clark nodded noncommittally. He hadn’t known the man well, but from the little he remembered and the little he knew about psychology, Turabian’s explanation might be plausible. Still, it was shocking to think of the astronomer suddenly turning on the captain of the ship whose launching he had inspired. Committing violent, senseless murder. . .

He changed the subject. “We should try to remember Dr. Lewis-ton as he *was*. Did he get the spectra he wanted from S Andromeda?”

“Yes. They’re quite good.” “And you brought them back safely?”

“Yes. Those, and the results of all the other experiments we were commissioned to do. We were all finished with those and well on our way home before—”

“Good.” Anxious to avoid, for the moment, getting back to the murder (*was it murder if Lewiston was insane at the time?*), Clark asked quickly, “Could you show me some of your findings?”

“I’d rather not now, if you don’t mind.” Turabian looked past the still-open hatch at the sunshine and landing field and the blue sky and tropical plants and ocean beyond. He smiled apologetically. “A little later, certainly. But please remember I’ve just been through the same months of isolation as Lewiston. Plus witnessing that grisly incident on board and then having to bring the ship home single handedly while babysitting a helpless, demented astronomer. What I need more than anything else right now is a booster shot for my own sanity—like a couple of days of quietly wandering around out there soaking up the atmosphere of good old Earth.”

“I understand.” Clark hesitated briefly, then added, “But it’s possible that some of the others with experiments on the *Archaeopteryx* will hear that she’s back and start badgering us for information. And, distasteful as it is, the Foundation will certainly have to have an immediate inquiry to formulate an official report on this business—and a way of handling PR when the news breaks. We should be able to get in touch with you if necessary. Could I persuade you to carry a -pocket communicator?”

“Well. . . O. K. But please don’t bother me unless it’s absolutely necessary.”

“We’ll do our best. Thanks, Jonel. And in case nobody’s mentioned it, welcome home.” They left the ship together, crossed a strip of field still clear of all personnel in accord with Turabian’s pre-landing stipulations, and stopped in at the Foundation’s port office to pick up a communicator. “Take a couple of good days to unwind,” Clark told Turabian as he handed him the tiny instrument, “and then we should be able to get everything sorted out in a week or so.”

Turabian went out. As soon as he had left, Clark got on the phone to Joe Sanchez, the Foundation’s chief counselor, in New York. When he got an answer, he didn’t even try to keep the worry out of his voice. “Joe, I’m down at Kennedy Spaceport and we have a real mess on our hands. Can you come down right away and talk it over?”

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Turabian went to his quarters, making sure nobody he knew was around, and changed into a tan outfit that he felt sure would be inconspicuous. He did indeed need time to unwind—among other things—and

being recognized by tourists, with the resulting celebrity treatment, wasn't the way to do it. He didn't need to worry about intentional publicity, of course—Clark had every incentive to keep his return as quiet as possible, as long as possible. But it was worth a little conscious effort to blend quietly into his surroundings.

He felt a little guilty about not letting Sandy know he was back, of course. Once or twice he almost decided to call her, but then stopped himself. He wanted to see her, but it would have to wait. Right now he really needed to be alone, away from everybody else. Even Sandy.

Wearing sunglasses adjusted to then- darkest setting, he hopped an uncrowded ground shuttle and rode it to a seaside park he knew a few miles down the coast. It had a narrow mile-long strip of light sandy beach between the ocean and a group of tropical gardens, with enough paths winding among the lush vegetation to provide effective solitude for quite a while. He strolled them slowly, savoring the impressions of Earth that flowed to him through all his senses. The isolation of super-c, and the realization that he was alone with two others over a hundred light-years from all other men, had brought a kind of awesome exhilaration, but being back was a more than welcome change of pace. Out there, there were no sea breezes bringing him that salty smell with- The musical accompaniment of breakers on the beach. There was no feel of warm sand underfoot. There were no palms waving against a backdrop of massive white cumulus clouds in a deep blue sky that stretched, wide open, to the horizon.

No, he thought with a slight chuckle, remembering space even as he sought to re-attune himself to Earth, but there are other things. Things that palm trees can't replace any more than they can replace , palm trees. I'll be back, someday.

Gently, he nudged his mind back to Earth. He stayed on the beach for a long time, occasionally wandering to the water's edge but more often using the twisting paths to avoid the park's few,, other visitors. Gradually he relaxed and began to feel at home.

And then the other thoughts began to surface. O. K.—let them. He would have to face them soon enough, and he wanted to be calm and relaxed when he did. That was why he had come out here.

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He had not been entirely candid with Clark, and that bothered him a little. He hadn't told any lies, but he had selected his pieces of truth with care, and he was sufficiently attached to openness and honesty that even that bothered him. He would feel more at ease when everything was out in the open.

Of course I'm going to tell them, he thought defensively, as if answering some accuser inside his head. I just need time to think it over. Want to make absolutely sure it's the right thing to do.

Such thoughts, of course, implied doubt. That had been. Lewiston's undoing. Doubt. Well, there was doubt. It was important to be sure he was doing the right thing. But eventually he would have to make a decision and live with it, whatever its consequences.

The thoughts began to churn in his mind, goading him toward action. A part of his mind was back aboard the *Archaeopteryx*, hopping from scene to scene,, sampling snatches that seemed immeasurably far away and at the same time vivid and urgent.

"Maybe," Lewiston said over and over, each time introducing some scholarly string of qualifiers. "But none of that matters, because there"—he pointed to the screen—"is the reality."

It was starting to come back to me now, and I didn't like it. I asked him about the other indications, and he nodded. "Dangerously?" I asked.

“I’m not sure,” he said. “We’re not well-instrumented in that area. And I’m not a biologist.”

We talked some more. Details blurred, they don’t matter. Then I heard Lewiston say, “After all, they have a hundred and thirty years.”

“They don’t have a hundred and thirty years,” I corrected bluntly, amazed that he would forget the cosine factor. He must really be rattled.

Turabian’s mind snapped back to the present. The sun was getting low beyond the trees to the west, and his wandering thoughts had filled him with a fresh sense of urgency. If he caught a shuttle right away, he could still get into a town and get a few things done tonight.

Let’s see, he thought as he turned, checked his pockets, and started with sudden briskness for an exit. *A library, certainly... and a doctor...*

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“Archaeopteryx,” Joe Sanchez mused idly, still experimenting to find the most comfortable position for his huge frame in the chair Clark had provided. *“Odd name for a ship like that. Any special reason for it?”*

“More or less.” Clark, seated behind the big steel desk and still unnerved by the whole affair, wished Sanchez would quit beating around the bush. But he knew that was unlikely. Sanchez would come to the point in his own good time, and until then there was nothing to do but go along with him and try to appear patient. *“The archaeopteryx was the first bird, its modern namesake is one of the first star-ships, based on the fundamental breakthrough Rao and Chang made a few years before the turn of the century. But even more than that, from our point of view, the original archaeopteryx was a bird of the past. That’s what our ship was supposed to be.”*

Sanchez, in the process of lighting a cigar, lifted his shaggy eyebrows and blew a cloud of smoke out through his mustache. *“And what’s that supposed to mean?”*

“You haven’t been following this? Well, Donald Lewiston heard a couple of remarks in his youth that stuck with him and so I guess they’re sort of behind this whole project. The first was by a man named John Campbell—back when going to the Moon was big news—to the effect that what astrophysics needed most was not bigger and better telescopes or spectroscopes, but a time machine. Lewiston was one of the first—or at least most vocal—to recognize that the Rao-Chang FTL drive could provide some of the same advantages.”

Sanchez looked interested but didn’t speak. After a brief pause, Clark went on, *“The other remark that influenced Lewiston came from a professor he had as an undergraduate. Do you know what a supernova is?”*

Sanchez nodded. *“When a star goes *bang*?”*

“Right. A bigger-than-average bang. There hasn’t been one in our galaxy for centuries, but in 1885 there was one right next door—S Andromedae, in the great spiral galaxy M31. An unusually favorable location for study—except that photographic spectroscopy wasn’t well-developed yet. Lewiston’s professor’s remark was simply that if S Andromedae had been just twenty years later—or a thousandth of a percent farther away—we would now know far more about super-novae than we do.”

Sanchez grunted. *“And so Lewiston wanted to take this... er... ‘time machine’ back to 1885 for a better look?”* *“In a manner of speaking. Not in every sense, of course—no Ineeting Great-grandma as a young*

girl or anything like that. But the light that came past Earth in 1885 was now a little over a light-century past us, and since the Rao-Chang drive can move much faster than light, it would be a fairly simple matter to go out and overtake it. That way we'd get a look at—the same view we missed in 1885. It would even be as bright, for all practical purposes, since a light-century is a very small fraction of the total distance the light traveled“

Sanchez knocked a long ash off his cigar. “A cute idea,” he said. “But you said it went out over a hundred light-years. That’s a lot farther than any of the other Rao-Chang ships have gone. I’m surprised the Foundation approved it so soon—especially just for one man to go look at one star.”

“It almost didn’t. The other ships are looking for colony sites, the *Archaeopteryx* was a purely scientific venture, and the Foundation did indeed balk at supporting it. But Lewiston was determined, and despite the popular picture of him as shy and mild, he could be shrewd and even ruthless when he was after a grant. When we made it clear that we wouldn’t risk a trip of that length and potential danger just for his supernova spectra, he conned a dozen other influential astronomers and physicists into letting him run experiments for them on the same trip. They wouldn’t have to go along—the instrumentation could be so automated that the ship needed no crew beyond one pilot, one full-fledged astronomer, and a mate who could double as the astronomer’s assistant. So he finally convinced us that the scientific value could be made commensurate with the cost and risk of life.” Clark smiled self-consciously. “In fact, some of us had very high hopes for this expedition.”

Sanchez took a long draw on his cigar, blew a mediocre smoke ring, and cleared his throat. “I see. And now the expedition’s .back—with the pilot dead, the astronomer insane, and nobody left to tell about it but the mate.”

Clark winced. *Well*, he thought with a sigh, *at least he did finally get back to the point.*

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There was an awkward silence while Clark tried to think what to say. Then Sanchez said, in the same musing way he said so many things, “I wonder if it was really wise to let that fellow—Turabian?—wander around with nobody sure where he was going.”

Clark blinked, startled. “Why shouldn’t he?”

“Well, I gather you didn’t question him very thoroughly. I haven’t had a chance to question him at all.”

“He’ll be back.” With sudden surprised comprehension, Clark laughed nervously. “Oh, come on, Joe! This *isn’t* a murder mystery!”

“Isn’t it? I mean, are you sure? I’m not saying you’re wrong, I’m not saying our problem is going to be any more than figuring out the most delicate way to tell the world that Lewiston did just what Turabian says he did. But, at this point, is it really so obvious that Turabian’s story is true?”

“I don’t see—”

“You don’t see any clear-cut evidence of exactly what happened, do you? I don’t think you will, either. Turabian says they struggled, the bulkhead tool would have had both sets of fingerprints on it, and they’ve probably both been cleaned off. All I’m saying is that Turabian told you one version of what happened, and there may be others. Which came first, Lewiston’s mental breakdown or his alleged killing of the skipper? If the murder came first—and maybe brought on the collapse—did Lewiston *do* it or *witness* it? Whoever did it, *why*? If Lewiston’s insanity came first, what precipitated it? No matter how it happened, all those questions need good solid answers before the Foundation can adopt a strong

position on this matter. And I don't see how we can get good solid answers when we don't even know where Turabian is."

Clark scowled, simultaneously slightly ashamed that he hadn't thought of the same questions earlier and more than slightly annoyed that Sanchez was making such a big deal of Turabian's temporary absence. "You're making a big fuss over nothing," he said. "Look, I know Jonel Turabian. I trust him. There's no problem."

"You're too willing to trust people," Sanchez told him bluntly. He looked really disturbed. "Too willing for your own good. I've often worried about that, Henry. Frankly, you never did know how to use power. You've got to realize that the people you can't trust are going to be very careful to make you think you can—so you don't dare really trust anybody. You've got away with it so far, just dealing with grant applications and such. But maybe someday you're going to find yourself dealing with something more important, and somebody you trust is going to catch you so off guard it'll make your head spin. I just hope now's not the time." He shrugged, but annoyance and frustration were strong in his usually undemonstrative face. "My advice would have been to keep him here until this whole thing's cleared up. But all I can do is advise. I can't make you listen to me. What are you going to do now?"

Clark pressed his lips together and silently studied Sanchez' face for several seconds before answering. Sanchez was being unreasonable—ridiculous. And yet, however slightly, he had managed to erode Clark's certainty that he could trust Jonel. Clark resented that, finally he said coldly, "Do you want me to get him back here?"

Sanchez' eyebrows rose slightly, very briefly. "Can you?"

"Of course. I asked him to carry, a pocket communicator when he left the spaceport. He took it without the slightest hesitation."

"Ah," Sanchez smiled mildly, "but will he *answer* it? I suggest you try him."

There was a phone on the desk. Somewhat apprehensively, Clark punched the code for the communicator he had given Turabian. An intermittent musical hum told him the call was getting through.

But nobody answered. Clark began to sweat with the third buzz, and grew more tense with each later one. He quit after twenty and turned away from the phone, badly shaken. "If it *is* a murder mystery," he asked almost inaudibly, "who has jurisdiction out there?"

"I don't know," Sanchez replied with a shrug. "But I certainly want to talk to somebody—preferably a psychologist—who knew Lewiston before the trip. And Turabian too."

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As he worked at his tissue analyzer, Dr. Sidney Marvin kept stealing furtive glances at his unexpected late patient. He felt just the slightest twinge of unprofessional annoyance—it was dark out already, and he had been all set to go home to Cynthia and supper when this young man showed up insisting that he had to know right away how much danger he'd been exposed to. He'd tried to convince the man—Jim Koehler, he said his name was—that doing the tests tonight wasn't going to be any better than doing them tomorrow morning. But Koehler had protested that he wouldn't be able to sleep until he knew, and had made enough of a scene that Marvin finally gave in. Now he kept thinking that something in the man's manner didn't quite ring true.

And that he ought to recognize him, even though he was quite sure he knew no Jim Koehler.

He turned away from the big stainless steel box and walked back over to the patient, examining the readouts as he went. “Well, Mr. Koehler, you can relax. There doesn’t seem to be any damage, either functional or genetic. I don’t think we’ll even need to check the crystal dosimeter you brought along.”

“Please do,” Koehler said at once. “It’s possible that I was in a position where something shielded me from most of the radiation. I’d still like to know how bad the general levels got.”

“But—”

“Please. You already put the crystal in the evaluator, so it’s just a matter of looking at the results. Right?”

Marvin started to argue, then shrugged and walked over to the evaluator. He took out the crystal and the card that lay next to it, containing an automatically printed summary of its indications. He gave the card a perfunctory glance, then did a double take and stared hard and long at it. Finally he said, “Good heavens, Mr. Koehler, you *were* lucky! You haven’t been messing around with unlicensed radiation research, have you? That’s very dangerous—”

“No,” Koehler interrupted, “I haven’t. May I see that card, please?” Before Marvin- thought to stop him, he scooped up the crystal and the evaluation and stuck them in his pocket

Marvin realized a little later that he should have insisted on getting the card back immediately. Now all he thought of was to blurt out, “Well, if you haven’t been doing unauthorized research, where on Earth did you get exposed to stuff like this?”

Koehler flashed him a quick, odd, almost humorless smile. “Funny you should ask that, but I don’t think the answer’s really important to your diagnosis. Thanks, Doctor. You’ve been a big help. I believe you said your fee would be eighteen dollars.” He pressed a twenty into Marvin’s palm and disappeared through the door.

Five minutes later, Marvin remembered why he had seemed to recognize Koehler. His mouth dropped open, he stopped suddenly with his hand on the doorknob, and after two seconds’ hesitation he rushed back to the phone and picked it up. “Long distance information, please.”

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II

Stephan Kovacs was still in New York when they called him the next morning, but Sanchez and Clark agreed that even small nuances might be revealing enough to warrant using a shielded picture-phone line. The image that looked out of the screen at them resembled a very distinguished white-haired walrus with rimless glasses, but there was nothing comical about the psychiatrist’s speech. His words came quietly, carefully, and trimmed right to the point. . . . “Yes,” he said, “Donald Lewiston has been placed under my care.”

“And you also handled his original screening examination before he was cleared to supervise the experiments on the *Archaeopteryx*?” Sanchez asked his question without ever moving his eyes from the screen. Clark just listened from } the sidelines.

“I did.”

“You got to know his character pretty well?”

“I’d say so.”

Sanchez lit his first cigar of the morning, talking off-handedly around it as he did so. “Dr. Kovacs, you’ve already been told that when Lewiston came back in this condition, the original pilot of the ship was found to have been murdered. This is all very awkward for the Foundation. We’re trying to find out exactly what really happened before word gets out and the public starts ad-libbing. So please keep whatever we say under your hat.”

“Naturally,” said Kovacs, with a hint of impatience.

“The ship’s mate, who was the only one aboard in a condition to tell us anything, says Lewiston broke down under strain during the trip and killed the skipper. Does that sound likely?”

“It’s quite possible.”

“The mate says he often suspected that Lewiston could suffer such a breakdown rather easily. He mentioned Lewiston’s usually wearing a characteristic fixed smile, which to him suggested that Lewiston’s outward appearance of self-control was maintained by what he described as ‘a tight lid that might blow off. Does that jibe with anything you found in your screening tests?’”

Kovacs nodded slightly. “There was an edge there, rather sharp and well-defined. Lewiston knew where it was, though, and did an admirable job of staying back of it.”

“But you do think he could have been pushed over?”

“Yes. Under the right circumstances.”

“The mate blamed it on the feeling of isolation while they were going faster than light, when the stars are invisible for an extended period. Do you think that could have done it?”

The psychiatrist smiled almost imperceptibly. “Well, I’ve never actually experienced super-c myself, but I’d have to say no. It would have taken more than that to send Lewiston over the edge, or I never would have O. K.’d him for the trip. It would have taken something more specific—more of a definite shock.”

“Hm-m-m.” Clark noticed a fleeting expression of *something* on Sanchez’s face. Then the counselor continued smoothly, “The ship’s mate we’re talking about is named Jonel Turabian. Did you screen him also?”

“Yes.”

“Is it possible that Turabian himself killed the skipper, witnessing that act triggered Lewiston’s collapse, and Turabian took advantage of that to transfer the blame to Lewiston?”

Kovacs looked surprised. “Highly unlikely,” he said. “Turabian was quite stable. It would have been very hard to drive him to something like that. He was about as far from homicidal tendencies as anybody I’ve ever examined. It’s a simple matter to run a lie detector test on him if you’re in doubt, but I’d put money on what it’ll show.”

“You feel pretty sure Lewiston did it, then?”

Kovacs nodded. “*He* thinks he did. He’s in no condition to give us much more information, but I think he’s right.”

Sanchez thanked him and broke the connection. “Well,” he said, turning to Clark, “looks like you were

right. It isn't a murder mystery." Clark had already started to feel relieved, but Sanchez immediately added, "It may be something much worse."

The smile Clark had started to form dissolved. "What?"

"According to Kovacs, Lewiston did just what Turabian said he did. *Except* that what sent him over the brink was something more than just the isolation in super-c. So what was it?"

Clark's jaw dropped slowly as he grasped Sanchez' point. Something must have happened out there. Something drastic enough that it drove Lewiston insane and Turabian didn't want to talk about it. *What?*

"I think," Sanchez said earnestly, "it may be important. I think we'd better try again to get Turabian back here as soon as possible and find out what happened that he's covering up. Want to try his communicator again?"

Clark nodded unenthusiastically. Fearing the same response—or non-response.—as before, he reached for the phone. And it rang.

He picked it up, startled. "Hello? Henry Clark'here."

It was the Foundation office in New York. "Mr. Clark," said a smooth-voiced young lady "we had an odd phone call last night, from a small town somewhere down there—Wabasso, I think it was. An M.D. named Marvin said he'd just-, had a patient who was acting strangely and was concerned about some radiation he'd supposedly been exposed to. He didn't show any body damage, but he brought along a crystal dosimeter that showed definitely alarming levels. And—get this—after the man had gone, this Marvin thought he recognized him as one of our Rao-Chang crewmen. Description sounded like Jonel Turabian. Is that possible?"

"We'll look into it," Clark said. "Anything else?"

There wasn't. As soon as that connection broke, Clark punched out Turabian's code as fast as he could. He felt tremendous relief when, after the first buzz, Turabian's voice said softly, "Yes?"

"Jonel!" Clark said with audible surprise. "You had us worried. Why didn't you answer when I tried to call you last night?"

"I was with somebody, and you wanted me to be inconspicuous, didn't you? So I thought it would be best to ignore the communicator right then."

"O. K. Was the somebody you were with a doctor?"

Turabian sounded startled. "How did you know that?"

"Never mind that now. Joe Sanchez came down from New York, and we need to talk to you right away. Where are you?"

"Public library and computer terminal in Palm Beach."

"That'll keep. We'd like you back here as soon as possible."

"Can you give me another hour or two? I need some more information and—"

"You can get it later. Please, Jonel—*now*."

Reluctantly, "O. K. Be there shortly. Maybe I can take some of this with me and read it on the way. So

long.”

As Clark hung up, he frowned. *Now what*, he wondered, *can be so all-fired urgent about a public library?*

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Turabian arrived early in the afternoon, which was quite reasonable, but Clark’s cordiality was strained as he welcomed him back and led him into the small conference room he and Sanchez had appropriated. As soon as they were all seated, around a small oval table with a magic slate top, Clark said bluntly, “You’ve been holding out on us, Jonel. We talked to the psychiatrist who dealt with Lewis-ton both before and after your trip, and he says Lewiston wouldn’t have cracked the way he did just from spending time in super-c. He says something else must have happened. Then we find out that in your first few hours back on Earth you’ve gone to a private doctor under a phony name with a worry about radiation dosage. Something’s very fishy here, Jonel. What is it? What happened out there?”

He was prepared to meet resistance, but Turabian simply nodded, thoroughly unruffled, and said, “You’re right.” It seemed to Clark, somehow, that he looked disturbingly calm and solemn. “I have been holding out, and I’m sorry. But I’m ready to tell you about it now. It’s important and it’ll take a little while, so make yourselves comfortable and listen closely.” He glanced from Clark to Sanchez and back again, as if waiting. Clark, feeling fidgety, made a determined effort to look relaxed and attentive. Finally Turabian asked, “Do you know what a Seyfert galaxy is?”

Clark searched his memory for the term. Sanchez said, “I don’t.”

“Neither does anybody else, really,” said Turabian. “We’ve only seen a few, and those from great distances, so we don’t know much about them. We know they’re spiral galaxies like ours, and they have small bright nuclei—or small bright regions in their nuclei—and peculiar spectra with strong emission lines and a lot of Doppler broadening. Some of them are strong radio sources. Some people have thought they may be “important sources of high-energy cosmic rays. But nobody’s sure what the mechanism is, except that it seems to be some kind of explosion involving the nucleus as a whole. Possibly a chain reaction of super-novae—or maybe something else, but that at least helps you picture the order of magnitude. Imagine tens of thousands of things like S Andromedae occurring in a few years in a small region of space, and you may get some of the right idea.”

Clark squirmed uncomfortably in his chair. What was the man driving at?

Turabian continued, but changed his tack. “Now, consider this. We liked to think of the *Archaeopteryx* as going into the past—by running after the light from S Andromedae, we reached a point where we were seeing things on that side of the sky as Earth had seen them in the past. Not all at the same time in the past—the exact amount depended on direction, from practically zero for distant objects straight out to the sides up to a hundred and thirty years for things straight back—but all in the past. But at the same time, and in just as real a sense, we had moved into other parts of Earth’s *future*. We had moved *closer* to objects on this side of the sky, and so were seeing them by light that wouldn’t reach Earth for quite some time yet.

“The center of our galaxy was about sixty degrees from our forward direction on the *Archaeopteryx*. Not straight ahead, but definitely in the ‘future’ half of our sky. And that’s where we saw the anomaly.”

Clark frowned. “What anomaly?”

“A bright spot that nobody’d ever seen before. Nobody’s ever seen the galactic center, you know, although we’ve known where it is for some time. It’s thirty thousand light-years off and hidden behind

thick ‘clouds of interstellar smog. But *we* saw it, right through all that stuff. And that means it was bright.’”

Clark felt a chill trying to start up his spine. Sanchez said, “Are you trying to say our galaxy’s going to become one of those Seyfert things?”

“I’m saying it already has. It happened some thirty thousand years ago, the light and radiation just hasn’t reached us yet. But we’ve seen it coming. It has the right kind of spectrum, and it’s coming from a point quite far off in the right direction. It’ll get here.”

“O. K.,” Sanchez said quietly. “When?”

“A very pertinent question,” Turabian nodded. “We weren’t in a position to fully evaluate the danger, what with limited cosmic ray instrumentation, medical knowledge, pertinent references in the ship’s computer memory, and time. But we did find references *indicating* that radiation levels in an exploding galaxy could get high enough to wipe out life-forms on planets all over the galaxy. So we rigged a dosimeter on the ship’s exterior to get data that could be analyzed later to give us an idea what Earth was going to be up against. And then we started home—jumping in and out of super-c several times to look at the explosion from various distances and find out when it starts.”

This is crazy, Clark thought. He’s talking seriously about the center of our galaxy exploding and destroying life on thousands of planets including this one—and it seems so far from reality that I don’t feel anything at all about it. Nothing. But slowly, insidiously, the feeling was starting to build up.

He heard Sanchez say, “And what did you find? I take it a hundred and thirty years was an upper limit—”

“Sixty-five years was an upper limit,” Turabian corrected. “There’s a cosine factor hi it because we hadn’t traveled straight toward the galactic center.” He quickly sketched the geometry on the tabletop. “Lewiston forgot it, too—and when he forgot something as basic as that, I knew he was really upset. The minute he first realized the bright spot was toward the galactic center was the first time I ever saw him lose his grin, and he was never the same after that. When we started hopping home, he looked up everything the computer had on Seyfert galaxies, and he worried. Sometimes he got obsessed with the idea that we must stop wasting time and get the warning home as fast as possible. Other times he thought we shouldn’t deliver it at all because there wasn’t really any danger and warning Earth would achieve nothing but unnecessary terror. And at still others he thought we shouldn’t deliver it because the danger was real and so bad that nothing could be done—so a quiet finish would be better than spending our last days worrying about the inevitable.

“More and more, during the long days in super-c, he took to sitting silently and morosely in a corner, never speaking except for occasional spells of hallucinations and raving on one of those themes. One of those times was when he attacked Dirk—I think he had all three of his ideas tormenting him at once that time. He struck with amazing speed and strength, I couldn’t stop him in time. I don’t think he even understood what he’d done afterward. All I could do was keep him tied up, sedated, and fed the rest of the way home.

“I only dropped below c once after that. The added strain of running the ship and taking care of Lewiston was getting to me, and besides there was a risk of getting stranded if I tried any more intermediate looks. So we came on in after that one. The thing in the nucleus was ‘Weaker that time, so I guess we were near the beginning, but it was still there.’”

Clark shuddered. It was starting to feel more real now—about as real as the mid-morning memory of a vivid nightmare. “So,” he asked, “how long do we have?”

“At most,” said Turabian, “twenty years.”

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III

Something unpleasant caught in Clark's throat. "Why didn't you tell us this right away?" he rasped.

"I wasn't sure it was wise," Turabian said simply. "Frankly, I was a little afraid one of Lewiston's worries might be right. In particular, I thought maybe he was right that there was dire danger and nothing to be done. You'll certainly recognize that, whether right or wrong, announcing this would have impact. Panic... despair..."

Yes, Clark thought bitterly as the reality continued to burrow into his mind, *certainly despair. How cruelly ironic that the Rao-Chang drive should give man access to the stars—and then show him an impending threat from which even those stars can provide no refuge.*

"If that was the case," Turabian was saying, "I thought it would be wrong to mention it. Once the cat was out of the bag, there'd be no way to get it back in. So I had to find out first how great the danger was. I buried our observations of the explosion in the computer, stored under a key word known only to me—don't worry, I'll give it to you now—and I sneaked out of the ship with the crystal dosimeter we planted outside in my pocket. I took that to Dr. Marvin last night, and went to the library to check some things our ship's computer didn't know." "And?"

"Lewiston was right. The danger is very real. The ship protected me, but out in the open I would have been in bad shape."

Clark felt an irrational flash of resentment. Sanchez asked the question that was in both their minds. "Then why are you telling us now?"

"Because," said Turabian, "he was wrong about there being nothing that could be done."

Another feeling surged up in Clark. He jumped on the words. "What can possibly be done?"

"It's possible to hide," Turabian said. "Not pleasant, but possible. And probably not even that *without* large loss of life. But at least some can take their lives and civilisation underground during the part of the day when radiations bad.

"Oh," said Clark. He was disappointed, he had hoped for a more pleasant way out. "How long will such measures be necessary?"

"It will seem like forever. Quite possibly a million years or so." He paused, neither Clark nor Sanchez said anything. Finally Turabian added quietly, "The other way—for some—is to migrate."

"*Migrate?*" Clark and Sanchez gasped in unison. Simultaneously, Clark said, "Where?" and Sanchez said, "I thought you said it affected the whole galaxy—"

"Uh-huh. I also did some research on the Rao-Chang drive when I was in the library. You know we used a top speed of 1.000c or so on all the runs we've made so far. Do you know why?"

"Why, I suppose..." Clark fumbled for an answer. He didn't actually know, but it was embarrassing to admit that.

"I suppose it's as fast as they can go," Sanchez offered.

"No," said Turabian, "it isn't. It's *not* an intrinsic limitation on the Rao-Chang drive. We don't *know* of

any intrinsic limitation on the Rao-Chang drive—except that it accelerates so *easily* when you get much past *c* that the navigation would be too tricky on trips as short as we've done so far. Like trying to go to the corner drugstore at six hundred miles per hour. But if you start talking *intergalactic* travel..." Surprisingly, he smiled.

And the smile grated on Clark's sensibilities. "Intergalactic?" he echoed incredulously, annoyed. "It's too far!"

"Is it? Why? The only reason I know is that it's so far beyond what we've done before that we hadn't felt ready to consider it yet. But sometimes a good kick in the pants can get a man to try something he never dreamed he could do—and he finds that he can. As far as I'm concerned, my galaxy exploding is a *dandy* kick in the pants!"

Clark's head spun, trying to assimilate it all. First being told that this galaxy was exploding, then that a possible solution was to leave it altogether...

For a moment he almost succumbed to the inviting optimism in Turabian's smile. Then sudden counter-reaction set in and he shook his head vigorously and slapped his hand down on the tabletop with a startling *bang*. "No," he said stubbornly. "It's no good. No good at all."

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Turabian looked at him oddly. "What's no good?"

"Your idea. I'm sorry, Jonel, but I can't buy it. Have you really thought about what you're saying? I mean, suppose it's true. Suppose Rao-Chang ships can make intergalactic trips. How many people can they take?"

"I can't give you any numbers. I never pretended it would be a neat way out for everybody."

"You bet. it isn't! Nobody's thought about building a really large-scale transport yet, but I can't imagine anything that would begin to make a dent in the population. The *Archaeopteryx* only carried three men, but that was special. O. K. The colony ships carried a few dozen. They're far cheaper than we ever dreamed interstellar travel could be, but they're still damned expensive. So when you sit there spouting glowing chatter about this thing spurring us on to bigger and better things, you're really talking about a tiny elite going off at the expense of the rest of us. Sure, *you* might be one of the elite, but what about *us*, Jonel? All of us who have to stay here and die, or curl up and hide and know that more generations than we can picture are going to have to do the same? While you go merrily off to the Magellanic Clouds or—" He stopped abruptly as he realized what he was doing. He hadn't even realized, when he started the tirade, that Turabian's attitude had got to him so much—or that there was so much personal resentment in his reactions. But it was true. If Jonel's idea were accepted, who would decide how many went, and who they would be? It would be a sticky question. However it was done, it was likely that Jonel would go—and even more likely, even unto certainty, that Clark wouldn't. It bothered him more than he liked to admit, and it would bother billions of others who were in the same boat and far less able to accept it.

And *he* would have to deal with all of *them*.

That threat was a lot closer and easier to visualize than the explosion itself—and therefore, in its way, more immediately appalling. With a conscious effort, he restored some calm to his mind. But he made no apologies.

He heard Sanchez put into words a faint hope that was in the back of his own mind. "Let's all hold onto

our hats here. How sure are you that the situation's really as bad as you've sized it up? You're sure this thing's really a *core* explosion and not something else?"

Turabian nodded, Clark thought he looked slightly shaken, but it was hard to be sure. "I don't see how it could be anything else. When you check the stuff I left in the ship's computer, I think you'll agree."

Sanchez grunted. "We'll see. O. K., suppose we take that for granted. How sure are you of the radiation hazard? You base your appraisal of that on a dosimeter you planted on the outside of the hull and had a small-town Florida doctor evaluate. Are you sure he knew what he was doing? I mean, the place where you had the dosimeter wasn't exactly equivalent to the surface of the Earth."

"I'm sure *he didn't* know what he was doing," said Turabian. "But I didn't just take his word for it. I got the analysis card from him and went over it myself, making all the corrections I could. It will be dangerous when it gets here."

"But," Clark objected, "you said the ship protected you. Why won't the atmosphere and the geomagnetic field protect us?"

"They will, to some extent—but not enough. Remember two things. First, a starship necessarily has a good deal of radiation protection built into it. Second, even if the intensity's low enough so it doesn't bother you in a few hours or days, it might still be disastrous if you get a continuous blast of it for your whole life. That's what we're going to be up against—for fifty thousand generations. I came off the *Archaeopteryx* with no serious damage, but I wouldn't have wanted to stay out there for very long. I was concerned enough to have a thorough tissue check at the same time I had the dosimeter read. I was lucky."

Clark sucked in a deep breath. They were grasping at straws, he knew, but it was better to do that than to pass hastily by things which appeared to be straws but were really more substantial.

O. K. The straws had been tested and found Wanting. Now what?

He thought through a long silence, but no answers came. Finally-he said, "I didn't mean to snap at you, Jonel. You'll understand that this is a bit of a shock to me. I'll need some time to get my balance. But I can tell you one thing right off. I can't accept the solutions you've suggested until I've really dug for something a lot better." "Do you have any idea where to dig?"

"None. But it has to be done. Surely there's a way we can help more people than that—and I've got to find it. Can I count on you to help me?"

Turabian looked at him for several seconds before he answered, and Clark failed utterly to read what he was thinking. Then he said, "Sure. And good luck. Do you have anything for me to do now?"

"Not right now. I have to get my thinking started first. There must be places and people you've been wanting to see since you got back. Why don't you go ahead? If you'll hang on to that communicator, I can call you when I get an idea."

Turabian stood up. "Will do. The key word for the records in the computer is 'syzygy', I guess you'll want to start there." He started toward the door.

"Thanks." In time, Clark remembered to add, "Please remember, all this is still in an awkward state. We're not trying to hide the fact that you're back, but we'll be trusting you to keep quiet about all of the details. Things like what happened to Dirk and Lewiston, and the core explosion business..."

Turabian stopped halfway to the door and nodded. "Sure, I understand. And you'll understand when I

say I'll have to make one exception.“

Clark started to react with shocked anger, but it dissolved into a relieved smile—the first time he had smiled in what felt like a long, long time—as his mind snapped back to normality enough to catch Turabian's meaning. “Sandy?” Turabian nodded. “Sure,” Clark said, still smiling, “I'll understand that. Just make sure *she* understands. And give her my best. Have a good trip.”

Turabian went out. As the door closed behind him, the mental image that had prompted Clark to smile projected itself twenty years into the future and the smile vanished as abruptly as it had come.

Clark felt very much as if a great weight had just descended on him and there was no one around to take it off.

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He sat silent for a long time that was probably actually no more than a minute. He gradually became conscious of the fact that Sanchez, retained by the World Science Foundation as “chief counselor,” hadn't been doing much counseling in the last few minutes. “Well,” he said suddenly, in a tone that might be construed as accusing, “what do you think about all this?”

Sanchez shrugged. “I think I'd better not form an opinion until I know more and have time to put it in perspective.”

“No bright ideas about what to do?”

“Not yet. I'd say start by going over everything the *Archaeopteryx* has filed under ‘syzygy’ with a fine-toothed comb. Make absolutely sure the problem's really what he claims it is before we put too much effort into a solution.”

“And if it is?”

“Then we're going to have to put an effort into it that makes the mind boggle. And I still wouldn't bet on finding a solution we like. I'm afraid this one may be *too* big.” He pushed himself away from the table and stood up suddenly. “I think we both need some time to think before we do much more talking. You know where you can call me.” When Clark said nothing, he went out and eased the door shut behind him. A moment later he stuck his head back in and added, “Assuming that *is* the problem, I can think of one man it might be a good idea to talk to.” Then he left again, and this time he didn't return.

Clark stayed where he was for half an hour, letting his mind wander over what he'd heard, urging it to calm down and steady itself onto a course of action. Occasionally he picked up a stylus and doodled absently on the magic slate tabletop, then immediately rubbed out the doodles, annoyed with himself. Lately—it had been building up since Dianne had died, almost two years ago—he had seemed to himself more indecisive and more easily irritated by little things than ever before. And this was no little thing. He took it almost as a personal affront that it should be dumped in his lap. He liked his job, for the most part, but he would never have taken it if he could have foreseen that it would include this kind of thing.

Why me? he thought miserably. Then he managed to force that kind of thinking out of his mind.

And a half hour after Sanchez had left, the meaning of his parting words suddenly penetrated. With a new surge of muted excitement, Clark reached for the telephone.

This may be a straw too, he thought as he punched for long distance, but it's worth a try. And it's something I can do right now,

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IV

It was still fairly early morning when Turabian turned off the mainway near Knoxville and headed east, following a branching sequence of progressively smaller and less luxurious roads. As soon as he was decisively out of the metropolitan area he took over manual control of the car, enjoying the feel of personally guiding it around the bends and dips and rises. As he wound up into the foothills, he passed through areas where houses were still scarce and trees in their October prime crowded in on the road as if to form a tunnel. In others he skirted open fields from which the brilliant golds and reds formed a plush carpet over distant rolling hills. Either way, it was exhilarating, seen through air as clear as he could-remember alid sparkling under a cloudless, hazeless sky. This was Earth at its best, almost as if making a special effort to welcome him back.

His last turn took him down a narrow dirt road reinforced with a halfhearted scattering of gravel, and bordered with a tall fringe of goldenrod. Two miles down that, an even narrower driveway swung off to the right around the end of an ancient split-rail fence and climbed steeply through a grove of walnuts and hickories, but Turabian didn't turn off there. Instead he pulled off the road, parked on the grass alongside the fence, and went up on foot. As soon as he got out of the car, clean cool air filled his nostrils with the smell of moist mountain soil and fallen leaves, and the leaves crackled underfoot as he went up the short slope.

The house, a little stone cottage that must be close to a hundred years old, stood on a relatively level grassy shelf looking out over the treetops across a succession of ridges and valleys culminating in the main range of mountains proper. Sandy Dunbar, despite her urban upbringing (or maybe in direct reaction to it, even she wasn't sure which), had fallen in love with it shortly before she fell in love with Jonel. When she found how cheaply she could buy it, she had moved in immediately.

She was home. Her jeep was parked under its shelter roof, a wisp of smoke floated lazily from the chimney, and—most conclusively of all—Ozymandias the Mutt was home and came running gleefully at Jonel's approach. Oz never wasted energy barking, he was a dog of action, not words. Jonel greeted him with just enough roughhousing so he wouldn't feel forgotten, then made it clear that he would have to wait for more. Oz accepted the verdict, but hung around with wagging tail while Jonel knocked and waited.

He didn't have to wait long. Sandy opened the door and registered immediate surprise. Before she could say anything, Jonel grinned at her and recited softly,

"Home is the sailor, home from the stars,

"And the huntress still home on the-"

"You're ad-libbing," she chided, echoing his grin. Before he could finish, she stopped him with a long, simply affectionate kiss. Jonel made no attempt to finish the poem. Eventually Sandy backed up about two inches and said, "But I'm really glad to see you."

To Jonel, experienced in reading the sometimes subtle nuances of her face, it was obvious that that was the weakest possible statement of her feelings. She had been worried—as well she might, with the extra time the trip had taken. "I'm really glad to see you, too," he said, and kissed her again.

Finally she said, "I didn't even know the *Archaeopteryx* was back. I was starting to get worried. We were expecting you... gee, how long? Two weeks ago?"

"Something like that. We had—" he hesitated slightly, "a little trouble on the ship. I'm sorry I didn't call to let you know I'd be late, but the faster-than-light telephone hasn't been invented yet."

She laughed. "That's O. K. You're back now. What kind of trouble was it?"

"I'll tell you... later. O. K.?"

For a split-second she seemed to have read some of the seriousness of the trouble, and to register concern about it. But she understood at once, and that fleeting reaction— so fleeting that even Jonel wasn't quite sure it was real—was swept aside at once. "O. K.," she said cheerfully, grabbing his hand and turning. "Come on in. I've got a bottle of champagne I was saving for when you got back."

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He followed her into the house, automatically checking his memory-image against her actual appearance. Nobody had ever accused her of being excessively pretty, but it had never occurred to either of them that any importance might be attached to that. She was twenty-six—five years younger than Jonel—and looked neither younger nor older. She could be described as fairly tall and slightly lanky, dressed at the moment in blue jeans and a red and white checked flannel shirt, with long brown hair falling straight down over her shoulders. A combination of bright eyes, a slightly sharp nose and an easily triggered good-humored smile gave her face a slightly pixyish appearance, but Jonel had learned to see much more than that in it.

She paused inside and let her eyes dart around the small living room as if looking for something. The place was not a display of model housekeeping. It was clean enough for health purposes, but not immaculate, and fascinatingly disorderly. Books and magazines filled a set of shelves at one end, but others were scattered here and there on desks and sofas and record cabinets. An oboe lay uncased on the desk and a guitar stood in one corner, a typewriter stood in another, with paper in it. Doors opened onto a kitchen with utensils on the table, a bedroom with an unmade bed, and a photographic darkroom in which water was running. It was, in short, the house of somebody too busy living in it to have much time for appearances.

Except for the pictures all over the walls, and those were what Sandy was looking at—a varied selection of her own sketches, paintings, and photographs, except for a few scenic photos Jonel had given her. Jonel scanned them too, both their eyes stopped on the same one at the same time. He started to comment that it was new, but she spoke first. "You haven't seen this one, I did it while you were gone. You like?"

"I like," he said immediately. -, This one was a, photograph, a most striking photograph made with a split-field lens and showing a mountain sunrise viewed from ground level between dew-covered blades of grass on a nearby bald. "Exquisite. Have you sold it yet?"

She shook her head. "No, I had a hunch you might especially like it, so I was saving it as a welcome-home present for you. If you want me to publish it too, I'll try, but I don't have to. I've sold a few pictures and a children's story since I saw you last, so I'm still eating." She grinned. "It's going to be kind of a relief to stop having to think about being commercial so often after we're married, though. I'm glad that's not very far off."

"Me, too," he said, stubbornly refusing to think about the things he was going to have to tell her this afternoon. He looked back at the picture of the grassy bald. "That's a nice place," he mused. "Why

don't we hike up there and gawk at it for a while?"

"Sure. But we have to sample your champagne first." She giggled. "I had the makings for a special meal, too, but they wouldn't keep this long. So would you like a hamburger with your champagne?" "You're ad-libbing," he observed, "but hamburgers and champagne just happen to be one of my very favorite lunches."

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There was another primitive road that went fairly close to the unnamed bald in Sandy's picture. Because of their late start, they drove her jeep along that as far as a little-used trailhead before taking off on foot. That left them two and a half fairly rugged miles, with a net altitude gain of fifteen hundred feet—a good trip for an invigorating but unhurried afternoon. Jonel was a little out of shape from the long weeks of relative inactivity aboard the ship, but not enough to make it really hard—and the mountains were in his blood. It was near here, and on a day remarkably similar to this one, that he and Sandy had originally met. They had both been out for late-season solo trips on the Appalachian Trail, up on the main ridge-crest, she heading north and he south. That stretch of trail was little used in that season, and solitude readily available along it, but the day's last sunlight found Jonel and Sandy converging on the same lean-to. They both moved in, pooled their suppers, and then, curled in down sleeping bags, talked well into the night with that relaxed ease characteristic of either old friends or back-packers meeting on trails. By morning he had decided to reverse his trip and head back north, if she didn't mind having a companion, and she decided that she didn't mind at all. A month later they were officially engaged, and she was not in the least bothered by the fact that he was already in training for the voyage of the *Archaeopteryx*,

Now, after the Old Bird had gone and returned, Jonel approached the top of this trail with a curious mixture of nostalgia and mild fatigue. He knew when they were almost there, he had been here before and recognized the tangle of rhododendron and laurel that bordered the bald itself. He felt the climb just enough to react by quickening his pace to hurry into the open meadow and then immediately stretching out on his back in the long, soft grass. Seconds later, Sandy tossed off her small day pack and flopped down next to him. For at least two minutes they wordlessly soaked in the view of wildly colored fluff undulating vigorously far into North Carolina. Nobody really knows what causes the treeless mountain-tops called "balds," common in the southern Appalachians, but many are grateful for whatever it was.

Finally Jonel said, "Nice neighborhood you've got here. Supper-time?" Sandy chuckled and got out the food she'd brought—a small, smoked cheese, a bag of her own special gorp, and a small wineskin into which she'd smuggled the rest of the champagne when Jonell wasn't looking. As they ate and talked of pleasant matters, Jonel relaxed more completely than he had managed at any time since he'd got back to Earth. For the moment, he almost forgot...

And then, when they were finished eating and Sandy was packing the few pieces of garbage to carry home, she asked, with deliberate gentleness, "Are you ready to tell me what went wrong on the ship?"

=====

He hesitated briefly before he started. He wasn't going to hold anything back, of course, but - he wanted to be very careful about how he told her. Some ways would be worse than others...

"Yes," he said. "First of all, let me warn you that Henry Clark—he said to tell you howdy for him, by the way, so howdy—Henry Clark doesn't want any of this being spread around 'yet And I think he's right, at least for the time being. So I can tell you, but I'll have to ask you not to even drop any hints to

anybody else. O. K.?”

She nodded, frowning slightly. “Of course.”

Jonel paused again, then said, “We’d finished everything we went out for and we were coming home. And Lewiston cracked up. We could see his sanity disintegrating, but neither of us ever suspected he was homicidal—until he killed Dirk.” “Oh, no!” “Yes.” “But... why?”

Jonel shrugged. “*He* may” have thought he had a reason, but I don’t know what it might have been. Like I said, he cracked up.“ *No*, Jonel thought, annoyed with himself. *That’s not quite right. This-isn’t coming out the way I want it to.* But right now he didn’t see quite how to fix it. He went on, “He seemed harmless because he was mostly very withdrawn. Sometimes he talked about things that were bothering him, but it was hard to see what Dirk or I had to do with them. Though with hindsight, “I guess maybe we should have suspected him of being potentially dangerous. Because he did sometimes have raving spells when he seemed to be hallucinating.”

“Oh? What kind of hallucinations did he have?”

“He was usually pretty incoherent, so I can’t really say much about that. But apparently one recurrent one involved being chased by demons or something. I remember him yelling out several times, “They’re following us, they’re following us!”” He paused and admitted, “He got pretty persuasive at times, even when he wasn’t making sense. Sometimes there was something about the way he said it that was just plain eerie. Sometimes we had to just tune him out to keep from half-believing it ourselves.”

Sandy pursed her lips thoughtfully. “Odd,” she murmured, “really odd. Let me get the picture, now. Lewiston went crazy and killed Dirk, so you had to keep him under control and bring the ship home by yourself, and that’s why it took you longer than it was supposed to.”

“Yes. That is—“

“I still don’t see why it took *so* long...” She frowned, shook her head, and backtracked. “What do you suppose caused him to do that? Lewiston, I mean.”

“I don’t *suppose*,” Jonel sighed. “I know.”

She looked at him with sudden surprise, waiting.

“You’ve gotten into astronomy, haven’t you?” he asked. She nodded. Jonel had remembered correctly that she had become intrigued when exposed to it in college—and then later’so disappointed with what her professors did with it that she gave up on formal courses in it. She had had similar experiences with a wide range of fields in two and a half years, but she had learned more about many of them after dropping out than many students did by staying in school. Jonel didn’t remember just how deeply she’d gone into this one, but he didn’t ask, if she needed to ask questions, she wouldn’t hesitate.

“Remember Seyfert galaxies?” he said. “The ones with explosions involving the whole core? Well, our trip took us closer to the core of our galaxy, and we discovered that that’s happened right here at home.” He watched her closely for reaction. She showed surprisingly little except to wait very attentively for more. He wondered whether she had somehow missed the point. “Our galaxy has suffered a core explosion. The radiation could wipe out life all over the galaxy. It’ll reach us in less than twenty years.” Pause. “That’s why I’m so late. We dropped below light-speed several times to look at it from other viewpoints, to get an idea how much time we have. Twenty years—at most.”

He looked at her. Still no reaction. Wasn’t he getting through to her at all? He reached out and touched

her chin. “Sandy... did you understand what I just said?”

She nodded. “Uh-huh.”

“And?”

“I’m numb. It’s too big to get my emotional teeth into.” She smiled thinly. “Let me see now. The Earth is going to become uninhabitable in a few years, and so are all the places we might escape to.”

“Not quite—on both counts. A lot of people... and other things...are going to die. I don’t see any way to avoid that. But some can probably survive by going into, hiding underground. And some may be able to escape by leaving the galaxy. Out between galaxies, we could run Rao-Chang ships a lot faster than we’ve done so far. So some people—hardy, adventurous types—just might be able to make it to another one and find a new home there.” He paused for a long time, watching her face closely. Then he said, “You see what I’m building up to?”

She nodded, her lower lip caught lightly between her teeth. “I think so. And that I *can* get my emotional teeth into. The future *we* had mapped out—you and I—isn’t going to happen.”

=====

He nodded and managed a philosophical chuckle. “One of the occupational hazards of trying to map futures. O. K., that one’s out, no use crying over it. The question is... you see the question that’s bothering me, don’t you?” “What do we put in its place?” “That’s the one.” She smiled her very characteristic smile. “Where will we go?” she asked quietly.

More tension than Jonel realized had built up in him relaxed when she said that. He reached out and touched her hand. “Thanks, Sandy. That takes a big load off my mind. You don’t mind being a frontier wife and mother?”

“You know me better than that. Where? The Magellanic Clouds?”

“I don’t think so. They’re the obvious first choice, being the closest neighbor galaxies. But they’re irregulars. Different kind of stellar population and interstellar medium than we’re used to. They might be O. K., but I suspect we’ll have better luck hunting for the kind of planets we need in M31. That’s only two million light-years away.” He chuckled, being ginning to feel better. “Besides, I think I’d miss the Milky Way if I went to an irregular galaxy.”

“So would I.” “Only two million light-years.” “That has an interesting ring to it.”

“Yes. And a little scary, when you start to *realize* it. Incidentally, we’d better not start thinking of *that* as our new future yet, either. Physically, it can be done, politically, it may be something else.” “How’s that?”

“Clark’s reaction when I mentioned this kind of surprised me, but it’s a good preview of what we can expect. When I suggested that a few people might be able to escape, he was so bitter, automatically, that it even surprised him—and he’s over sixty and has a lot more intelligence and self-control than most of the population. We’d just better bear in mind that if something like this reaches the planning stage, there’s going to be plenty of heat generated under collars about who gets to go and who doesn’t. Maybe even enough so nobody gets to go.”

“Oh.” Sandy shrugged. “Well, if that happens, then I guess we’ll just have to make the most of the time we have left here, won’t we?” She finished the sentence with an air of finishing today’s chapter of the discussion, and Jonel chose not to pursue it. Sandy looked up at the sky and said casually, “Look where the sun is. We probably ought to start down.”

Stretching lazily, they stood up. Jonel got the day pack and they headed down through the rhododendrons. The afternoon continued with neither any further mention of the danger nor any feeling of tension brought on by deliberately avoiding it. It continued, in fact, just like an ordinary pleasant afternoon's hike in the mountains. The core explosion had become simply one more item which they both knew and would deal with when the time came. And for her ability to do that, Jonel's admiration for Sandy climbed another notch.

But later, as they sat watching the gold-hued sunset from a rock outcropping not far above the place where her jeep was parked, he noticed that she seemed to become very pensive. "Something wrong?" he asked.

"I was just thinking about two things," she said. "One of them is all the people who can't escape."

"And the other?"

She smiled quasi-apologetically. "It seems silly, really. Though sometimes hunches do have something to them. Maybe they come from subconscious thought, or extrasensory inputs, or..."

He nodded, understanding. "Intuition" was little understood, but he would be the last to deny that it sometimes had unique value. "What is it?"

"I keep wondering," she said, "why Lewiston should have kept thinking you were being followed."

=====

V

Henry Clark had had no previous personal dealings with Chan-dragupta Rao, but he was well aware that in recent years the renowned physicist had become noted for his bitterness toward the Foundation—and, it sometimes seemed, toward the world at large. The reasons weren't clear to Clark—Rao had had a couple of grants turned down, but so had many others including several of comparable stature—but the fact was well known. It didn't matter, because Chang Pei-Fu had died in an automobile accident twelve years ago, so that now only Rao remained. He had been reluctant to grant the interview, but had finally given in after the most determined persuasive effort Clark had ever made.

He faced Clark across a huge wood-textured desk that drew excessive attention to his slight build. Behind him, the morning-lit Sangre de Cristo mountains loomed over his shoulder, adding to the impression. The bushy black hair framing his swarthy face was already graying in streaks, in a way that made him look much older than fifty. But the gaze that riveted Clark, from small black eyes set under craggy ridges, was still as utterly penetrating and disquieting as Clark had ever seen it in pictures.

For a long time after his visitor had been shown to a chair, Rao just stared that way. Then he spoke, in a surprisingly mild voice with the clipped accent common around Bombay. "Brevity is the soul of many good things," he told Clark. "Therefore I will be blunt. Why have you come to me?"

"A fair question," said Clark. Getting the interview without revealing too much of the reason had been the hardest part, but important, the slower the gossip spread, the better. Already Borowski's funeral had spread it more than Clark liked, though fortunately, the skipper had had few relatives or friends. The need for caution was not yet past. "I sought you out as the foremost authority on the Rao-Chang drive—"

Rao laughed aloud, harshly. "Hardly, Mr. Clark, hardly. Pei-Fu and I stumbled onto the technique, that is all. Sometimes I regret it. It seems to have taken all of science in directions quite contrary to what we had

intended.”

Clark lifted his eyebrows slightly. He hadn't expected this, but he could see potential advantage in listening for a while. “Oh? What do you mean?”

“Consider, Mr. Clark, consider. What were my late colleague and I seeking? A more perfect *understanding* of the universe. And what has been the effect of our accidental discovery of the paratachyononic drive? Theoretical physics is in a shambles, and getting worse instead of better. We can *use* the drive, but we don't “understand it. The very foundations of theory need to be rebuilt, and the younger generation of physicists seem to have no desire—or courage—to do the job. And the older ones, such as myself? Well, so much of your Foundation's money is going to men who like to play with toys like star-ships that there is little left for those of us dedicated to honest, basic science. And in a way it's my * fault.”

He shrugged and flashed Clark an ironically charitable smile. “But one must be philosophical. You are looking for the foremost authority in matters paratachyononic, Mr. Clark? Then don't come to me, it has gotten out of my hands. Go to the men who play with star-ships.”

=====

Clark squirmed uncomfortably. He understood Rao's reputation better now, but he didn't especially like the way the interview was going. Awkwardly, he said, “You underestimate your position, Dr. Rao. As a matter of fact, ships are what I want to talk about, but I still think you're the man I need to see. The engineers are too close to them. I need someone who can see a bigger picture of the principle and its potential. As its co-discoverer, you seem best qualified. I know you've done some follow-up work. And surely you've followed the practical developments at least casually, haven't you?”

“Yes,” Rao admitted. “Casually, and occasionally with cynical amusement. As for my own follow-up work, it has borne little fruit because the Foundation neglected to provide fertilizer. But—” he shrugged again, “if you know all that and still wish to ask me questions, I may as well try to answer them, since you have come this far. What are your questions, Mr. Clark?”

“Suppose I told you the government was interested in a large-scale interstellar migration. Much more massive than the little bit of colonization we've tried so far.”

“Are you telling me that?”

Clark sighed. “*Tentatively*, Dr. Rao, tentatively. It's all quite hypothetical. I'm merely interested in your ideas about feasibility, as a matter of... er... curiosity. Now suppose we wanted to move as many people as possible. How many people would you estimate that could be?”

Something else had crept into Rao's eyes, but Clark couldn't identify it yet. The physicist just said, “Your question is too broad. How many people per ship? How many ships?” “How long is this hypothetical operation to take?”

“Well... I guess we should think of it as a multivariable-calculus-of-variations problem, rather than specifying the numbers you mentioned, suppose I just say maximize the number of people while minimizing the preparation time and cost per person.”

“Anything else?”

“Assume an all-out industrial commitment to the project. Assume the ships to be capable of supporting the passengers for several months.” Rao still stared silently at him and he added, “And if it'll help, you

can assume a time limit for completion of the project. Say... fifteen years.”

Rao nodded as if finally satisfied with something, and began making hen-scratchings on the magic slate panel inlaid in his desktop. “There are still too many variables for me to do more than guesstimate,” he muttered as he worked. “Exactly what is an ‘all-out industrial effort’? I don’t know, but I will guess. Fuel is no problem, sub-nuclear engines do all the work on both sides of the jump and they’ll run on anything. Garbage... seawater... caviar... money... Even the mass ratio is not too horrendous. Life-support for several months? It was done on the first trips to Mars and approximated on the recent colony ships, I suppose it can be done again. How many people? It is not my field, but I find it hard to believe more than a few hundred. If you would like a wildly optimistic estimate, let us suppose a ship can carry five thousand. How many ships? Let us say a thousand—such ships can be built and launched—surely a wild overestimate for fifteen years, is it not? Then that gives you a capacity to move five million, people.”

Or, Clark translated mentally, less than one thousandth of the population. And his estimates certainly seem generous enough...

“If you would like a more realistic estimate,” Rao was saying, “you may scale down whichever of my figures seem too ridiculous by appropriate orders of magnitude.” He blanked the magic slate and leaned back comfortably in his chair. “And now, Mr. Clark, if we are finished playing games with imaginary starships, would you like to tell me what’s behind all this?”

=====

The question startled Clark. “I told you it was all hypothetical,” he said, a bit sharply.

Rao smiled benignly. “Come, Mr. Clark, I am not so poor a judge of men that I cannot see that there is more than casual curiosity behind your actions. You would not have traveled so far to visit one with my well-known views for nothing. And you would not be so uncomfortable in your chair if you were not afraid of showing more than you intended. If you really want my advice, does it not seem reasonable that I should know more of the problem I am asked to solve?”

Clark swore silently at himself. Would he *never* learn to stop being so transparent at the wrong times? “You’re right,” he conceded slowly, “there’s a little more to it than that.” He pushed a button in his pocket. “I’m recording, Dr. Rao. I’ll tell you more, with the understanding that it’s strictly confidential, and any breach of the confidence is prosecutable by the Foundation and the United Nations.”

“Understood. I’m waiting, Mr. Clark.”

Hesitating briefly, as if an extra second might bring an inspiration that would make it unnecessary to let yet another person in on it, Clark began his explanation. “We have reason to believe,” he said, “that our galaxy has suffered a large-scale core explosion. In a few years Earth will begin a long exposure to dangerous radiation levels. Most of the galaxy has already been affected, and the rest will be. It’s been suggested that we might be able to escape to another galaxy nearby by using Rao-Chang ships at unprecedented speeds.”

“Please, Mr. Clark, *paratachyonics*. It embarrasses me to have my name attached to those things. You have ‘reason to believe’, you say. What sort of reason?” -

Clark debated briefly whether to tell him, then went ahead. “The *Archaeopteryx* crew saw the explosion. You know of the *Archaeopteryx*’ Rao nodded. “They saw it, identified it, ran spectroscopic tests on it, and looked at it from several points between here and the point where they made Don Lewis-ton’s observations of S Andromedae, trying to pin down the time when the danger starts.”

Rao looked faintly and annoyingly amused. “I see. So you are pretty sure about this thing?”

“Yes.”

“Perhaps. Perhaps.” Rao looked thoughtful for a couple of seconds, then said, “I assume you see the hopelessness of that suggestion now?”

“Perhaps.” Rao seemed not to notice the mimicry. “Knowing that the reason we’re interested is a real threat to you and me and everybody else doesn’t give you any goad to think a little harder about it? Maybe come up with something you overlooked when you thought it was all a game?”

Rao shrugged. “Facts are facts, Mr. Clark. I gave you my appraisal of them a few minutes ago. The fact that I am personally threatened does not change them. I still find it inconceivable that you could rescue any significant fraction of the population that way.” He grinned wryly. “Besides, even if I feel personally threatened, I do not feel any great incentive to be rescued in such a way. Such a voyage would not be pleasant... and what would be waiting at the other end?”

“A chance to survive,” Clark answered, a bit snappishly. “But nobody has to go. At least some of those who can’t or don’t want to can stay on Earth and learn to live in underground shelters—”

“Just as bad,” Rao interrupted scornfully. He shrugged “again, with him, the gesture was so habitual as to have little meaning.” Really, Mr. Clark. Is life itself so precious that I must cling to it at all costs, even if I must live like a rat in a hole? Why bother?”

Clark sat silent for many seconds, breathing heavily and plagued by the knowledge that he was getting nowhere. He was beginning to tire of this. They were *both* beginning to tire of it. Finally he asked in a low voice, “But what about those who *want* to go?”

Rao shrugged. “Let them.”

“And you’re not willing to help?”

“I see no way I can help. I have no advice to give you.” He drummed briefly on the desk and then added casually, “Except that if you’re really concerned about this, you might want to send the *Archaeopteryx* out again, out of the galactic plane, to get a better look at the core and make sure that’s what your crew was really seeing.”

You don’t believe this at all, do you. Clark thought incredulously, *You’re humoring me.* “The ship’s computer already has lots of observations of it,” he said—redundantly, he thought. “Including radiation measurements and parallax measurements taken from several observation points along a 130-light-year baseline. We’re sure.”

“Then,” said Rao with a final shrug that carried an air of dismissal, “I can tell you no more.” Clark rose from his chair to leave. As he went through the door, he heard Rao add behind him, “Except that you’re going to need another expedition anyway—to find out just how much time you do have. Aren’t you?”

=====

Disappointment and frustration churned in Clark’s mind as he went outside and called a cab. He was glad the private plane that awaited him at the airport was chauffeured—he was too preoccupied to do his own flying.

He found a shaded bench to sit on while he waited. Over and over he reexamined his conversation with Rao, searching futilely for something helpful buried among the callous indifference and veiled sarcasm.

That attitude was real, but he seriously doubted that it had gone so far as to interfere with professional ethics. When Rao gave his opinion that no real rescue plan lay within man's grasp, he believed it. He had not told Clark anything he couldn't have estimated for himself, but he had brought the conviction of authority to it. He had laid to rest the haunting fear that Clark, when he reached those same conclusions on his own, was overlooking some saving feature that would be seen at once by an expert.

The expert had spoken. A small yellow cab pulled up at the curb, almost silently. The driver started to get out and come around to open the passenger door. Clark waved him to stay and opened the door for himself. "Airport," he muttered. He settled back into the seat, arms folded across his chest, as the cab lurched forward.

O. K., he thought, *so what now? I'm supposed to get down on my knees and mouth prayers, maybe?* Somehow the thought rang hollow. He needed to *do* something.

But for the first time in his life, he found himself in a situation where there seemed to be nothing he could do—nothing any man-alive could do. A situation where, if help was going to be found at all, it would *have* to come from outside, from a power bigger than all the resources man could muster on his own.

And when the chips were down, Henry Clark found that any belief he had ever had in such a power had evaporated, sometime during the passing decades.

His thoughts merely idled for the last five miles of flat, arrow-straight road. When the cab turned off into the airport, Clark directed the driver to the right gate with the main part of his mind a million miles away. The cab stopped, he gave the driver his Foundation ID and account cards, waited to get them back, and got out with a minimum of thought. He stood absently watching the cab leave, and finally turned and walked slowly through the gate in the wire fence, toward the little lemon-yellow swept-wing jet.

Tony, the chauffeur, came out to meet him, traveling with an odd hurried gait that was not quite a run. Tony was young and impressed by his uniform and the importance of his job, he moved with a slightly awkward version of military precision as if on display. "Are you ready to go back, Mr. Clark?" Clark nodded and grunted. Tony hurried to open the door, helped him in, made sure his seat belt was fastened. Just before he stepped forward into the cockpit, he told Clark, "You have a message, sir. Counselor Sanchez wants you to call him back. He said to tell you it's urgent."

Clark felt little reaction. He sat unmoving through take-off, musing idly on what Sanchez considered urgent as the engines roared into readiness and the plane taxied out, thundered down the runway, and rose sharply toward the unbroken blue above. Only when they were well off the ground and climbing less steeply did he punch out Sanchez's call code.

But as soon as Sanchez answered, Clark sensed something unusual in his voice. It was too subtle to put a finger on, but there was some sort of—excitement?—there which in Sanchez was hard to arouse. "Did you find anything out?" he asked.

"No. I... just a second." Clark pressed a button, a soundproof glass panel rose to seal him off from the cockpit. He pressed another, and relays isolated this conversation from the pilot's audio circuits. "I saw Rao." He said. "He's as bad as his reputation—though it's not all his fault. He confirmed everything we'd guessed. No way out. Under conditions so favorable they're hard to believe, he can picture a fraction of a percent of the population getting away—if the other ninety-nine-plus give slightly more than their all to make it possible. And I can't picture that. Altruism exists, but this is ridiculous." He paused and added, "So I guess that shoots that. I don't know who else to ask."

"You might think of somebody surprising," Sanchez said. "That's why I called you, actually. We are isolated, aren't we?"

“Definitely.”

“Good. I got a really weird call from Kennedy a while ago. They wanted you but settled for me. Seems they noticed a large object in an orbit where nothing belonged yesterday, and sent a shuttle out to investigate. As soon as the shuttle got within fifty thousand miles of it, they got a call on the radio—on the shuttle and at the spaceport and nowhere else that we’ve heard about.”

Clark struggled to sweep the mist away from his mind, concentrating desperately. What was Sanchez getting at?

“You guessed it,” Sanchez said. “The speaker said the shuttle should turn back and stay away from the thing in orbit, and they’d send their own down to Kennedy to talk to us. Created quite a furore at Spaceport HQ, but they decided not to take any chances and called their shuttle back pronto. And now they’re expecting company.”

“What kind of a prank...” Clark muttered, frowning deeply. “Did they find out who it was?”

“Aliens,” said Sanchez. “Honest-to-gosh aliens, from Somewhere Else. I know it sounds wild, but it seems to check out, and that’s all we know. And they want to talk to you.”

“Me?” Clark yelped. “You mean *me*, personally?” “Yep.”

“How would they even know I exist? This whole thing-”

“Maybe you should ask them. But they do seem to know.”

“But... *why*”

And in his answer, Sanchez’s voice conveyed a strange mixture of mysterious fascination and profound doubt. “They said something,” he said, “about wanting to help.”

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VI

Clark was too startled at Sanchez’s news to express surprise at the alleged aliens speaking English, but he had plenty of time to think about it as they flew straight to Florida—and then as he and a small hand-picked group waited nervously for the emissaries’ arrival.

They watched from the glassed-in room atop a control tower, with a commanding view of the whole spaceport, a network of roads and runways crisscrossing the swampy and scrubby ground all the way to the ocean, studded here and there by spidery towers, two members of the control tower staff were there, as well as Sanchez and Clark—and Rao, hastily summoned to take a look, at the aliens’ transportation and listen critically to anything they might say on technical matters. Clark had not been eager to consult Rao again, but a technical consultant was needed, and Rao already knew something of the *Archaeopteryx* affair. The fewer others who found out, the better—and Clark felt a strong hunch that the alien business was not unrelated.

Beyond that, except for a handful of Guardsmen waiting downstairs, there was nobody anywhere within the expansive boundaries of the port. Never before had such extreme security measures been invoked. The fact that they had been today would in itself tend to arouse suspicions among those who had been barred. But Clark had decided that that risk was preferable to letting unscreened hordes witness the arrival of the first extraterrestrial intelligence man had met. Now he only hoped their arrival would not be so flamboyant as to draw attention from miles around.

And that seemed a rather forlorn hope.

Long minutes crept by, no sign of visitors materialized. Clark, who had rarely smoked in his entire life, bummed two cigarettes from one of the tower men. The radio was on, but silent. They told him the aliens' "ad spoken on it just minutes before his arrival, but he had not yet heard anything. Finally he muttered impatiently, "I thought you said they would be getting here right away."

"They said they were coming down right away. They didn't say how long it would take."

"Did you ask them?"

The man who had answered before, the older of the two at the central console, nodded. "They didn't answer. They haven't said much to us, actually. They don't seem to hear our questions, and they don't ask any of their own. They just tell us what they're going to do next."

Clark didn't like the sound of that. He asked, "How are they coming in?"

"They, didn't say. We offered them the usual landing guidance, but they never acknowledged. Guess they think they can make it on their own."

Clark said no more. Silence grew heavy in the control tower. Then Sanchez said, "What's that?"

Clark turned his head sharply and tried to follow Sanchez' pointing finger. But he saw nothing except a couple of small clouds floating in a sky that was unusually free of them. He started to say so, but just as he opened his mouth he became aware of a deep, almost inaudible hum, and simultaneously thought he saw an elusive glint in the sky—as if one small piece of the blue were trying to detach itself from the rest. But that impression had barely had time to register before he most definitely saw the globe settling onto' the pavement less than a hundred feet away from the tower.

He was on his feet instantly, pressing his face- against the window. It was a globe, all right-spherical, smooth, and featureless, of a velvety blue that uncannily matched the sky—and hardly more than twenty feet in diameter. It was the source of the hum, on a sudden impulse, Clark opened the window to better gauge its actual loudness. It remained a mere hum, not even remotely resembling the awesome“ roars of man-made spacecraft. And now it died, its pitch dropping smoothly beyond the limit of human hearing and giving 1 way to an eerie stillness. And the blue globe changed shape, its bottom flattening. Within a minute, the whole thing had relaxed into a dome perhaps thirty feet in diameter at the base.

Nothing else changed. Except, that the radio finally spoke behind Clark. "Our landing is complete," it said. "We will be in to see you directly." Clark felt an odd excitement. That voice was not human. Its pitch and timbre had elements resembling both alto and tenor, in human terms, and others that fit no familiar labels. Its pronunciation of English vowels and consonants was uncannily accurate, but its overall inflection had a peculiarly singsong quality.

The words penetrated only afterward, when Clark saw an arched opening appear at the base of the dome, with a dimly glimpsed figure moving inside. "*We will be in,*" the voice had said.

Suddenly Clark was tugging at Sanchez' arm and hurrying toward the elevator. "Come on. Let's go down and meet them."

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They emerged from the bottom of the tower a few seconds later, just as the aliens emerged from their craft. On the way through the door, Clark snapped instructions to the Guardsmen waiting in two cars. One of the cars, a three-seated sedan with curtained windows, pulled out almost silently to follow him,

Sanchez, and Rao as they walked out onto the field.

And the aliens strode toward them—tall, stately, imposing in appearance as their skins and garments glittered in the bright afternoon sunlight. There were three of them, all very similar in appearance, one walking alone in front, the others side by side behind him. Clark, thought of the forms they might have taken and marveled at the one they actually wore. He had feared they, might evoke involuntary feelings of revulsion, but there was none of that. They were humanoid, with two arms and two legs and walking very erect, their seven-foot forms “cloaked in flowing togas full of metallic sheen and wildly colored iridescence. Bare, bronze-hued skin showed only at their feet, hands, and head—a long oval head devoid of hair, with ears and eyes and mouth hi familiar positions, but no apparent nose. As they got close, Clark noticed that the one in front somehow looked older. Hard to judge in an alien, perhaps, but old age is a matter of increasing entropy regardless of species, and this one gave that impression—through the slightly olive cast and lesser smoothness of his skin, and in a variety of other ways too subtle for Clark to put his finger on.

What do I say to them? Clark wondered suddenly. Somehow everything he could think of sounded corny. But now they were face to face, standing still at close range, and one of them would have to start a conversation. Looking up into the nearest statuesque visitor’s face, he saw that they did have nostrils, but set in the throat, far back under the chin. And he noticed a faint, unfamiliar but not unpleasant smell.

Finally he contrived a smile and said awkwardly, “Welcome to Earth. My name is Henry Clark. These are Joe Sanchez and Chan-dragupta Rao.”

“Henry Clark,” the front alien repeated in the same voice Clark had heard on the radio. “Joe Sanchez. Chandragupta Rao. I am Beldan.”

“Beldan,” Clark repeated carefully, trying to get the sounds as exactly as he could.

“Beldan,” Beldan said again, .in a tone so exactly like the one he had used before that Clark concluded that the tone must be an integral part of meaning in Beldan’s language.

“Beldan,” he said again, this time imitating the pitch of each syllable as well as he could. This time Beldan did not correct him. “I’m very pleased to meet you.” He turned and opened the door of the curtained sedan—fortunately one with a high roof and very roomy interior—and told Beldan, “If you’ll join us in the car, we’ll go to a room where we can talk.”

Beldan’s slightly bulging eyes momentarily withdrew deep into their sockets, then returned. “Your offer is appreciated,” he said, “but the car is not necessary. We can talk here, or we can walk to your building.”

“We prefer not to stand in the sun,” Clark explained. “And the building we will go to is not the closest one. The car is for your own protection.”

“Then we will go hi it.” Beldan turned to his two compatriots and said something in their own language, a terse utterance with an oddly musical (though atonal) pitch pattern, consisting largely of pure vowels but occasionally interrupted by complex consonant clusters. The others’ eyes made the same seemingly involuntary movement Beldan’s had made, and then they followed him into the second seat of the sedan. Relieved, Clark slid into the third seat, followed by Sanchez and Rao, and the car took off across the field.

“You said the car is for our protection,” Beldan said as they started up. “Protection from what?”

The question took Clark by surprise. “Why... uh... protection from any possible mishap. Not that we expect anything, of course.”

Beldan said no more, but Clark caught a glimpse of his face and had the distinct impression that Beldan didn't understand at all.

And that, Clark didn't understand.

=====

The driver whisked them into the administration building through one of the vehicle entrances. They sped through tunnels to the central elevator, and there the three humans and three aliens disembarked, and took the elevator to the building's top level. The halls, empty, and silent, felt strange. Clark was used to them when people were coming and going and business machines were humming and clattering in all the rooms. Today's security was so complete that all operations had been suspended even here. Arrangements had been made hastily to route all telephone business to outside stations, but Clark was painfully aware that all that was purely stopgap.

A conference room awaited them at the end of a corridor. It was similar to the one in which Jonel Turabian had first announced that the galaxy was exploding, but considerably larger. They filed in and took seats around the oval table, as if following unspoken directions, the humans sat along one long side and the aliens along the other. During the awkward pause as they settled into chairs under bright, even fluorescent lighting, Clark noticed details about the visitors that he had missed before. Things like the uniform bright red of their eyes, the long slender fingers and the presence of two thumbs on each hand. And details of their clothing—the intricate rippling color patterns had struck him immediately outside, and now he was increasingly impressed by the abundant use of metals in them, both in numerous small ornaments and in the fabrics themselves. The effect was breathtakingly beautiful—and, by human standards, incredibly extravagant.

When everybody seemed to be settled, Clark self-consciously smiled his best official smile and said, "Under ordinary circumstances, I'd begin a meeting like this by offering our visitors refreshments. But I'm afraid I haven't had many guests from off Earth before, and I wouldn't know what to offer you. So if there's anything I can get you, please don't hesitate to ask for it." He paused, cleared his throat, and changed the subject "After that, I hardly know where to begin. Perhaps I should compliment you first on your excellent command of English. May I ask how you came to acquire it?"

Beldan's lips parted, revealing a single highly polished ridge across the front of each jaw, where a man would have incisors and canine teeth. Another such ridge extended back each side of each jaw in place of molars. The gesture seemed intended as a smile, but Clark sensed that it was not a native one, instead, Beldan seemed to be consciously imitating the human response. "We have been orbiting your planet for several days, monitoring your public communications with modulated electromagnetic waves." (*Radio and television*, Clark translated.) "There is a wealth of study material there from which to learn the language."

"You learned very well... and fast." Clark found the answer incomplete and unsatisfying, but he decided not to pursue it headlong. Instead he asked, "What has brought you to Earth?"

"We noticed your ship in super-c—the *Archaeopteryx*, I believe you call it. From its behavior, repeatedly making the transition between sub-light and faster-than-light travel, we concluded that its crew must have observed the galactic core explosion and was trying to learn more about it. We followed it home, believing that perhaps you would need help in order to escape the tragedy. We may be able to offer such help."

Clark's heart jumped wildly.

Only hours before, he had been driven to the desperate realization that outside help was the only thing that could provide a way out. Then it had seemed impossible. Now he was sitting across a conference table from a sophisticated extraterrestrial being who was on the verge of making an offer.

It seemed too good to be true. So much so, he cautioned himself roughly, that he'd better guard against investing any optimism in it until it had been so thoroughly checked out that skepticism was no longer possible. He said only, "Your people are already fleeing the core explosion?"

Beldan nodded. Again, Clark didn't know whether the gesture was native or acquired, but it fit. "We—we call ourselves Kyyra—we lived much nearer the core. Not actually inside the galactic nucleus, by your reckoning, but close by. Our homes were among the first and most direly threatened, so we had no alternative but to flee outward. And since no place in this, galaxy could be counted on to be really safe, we plan ultimately relocate in the nearest other galaxy! of similar type—the one you M31."

Before Clark could answer, Ra said. "Perhaps you could tell us a point of information, Beldan—he made no attempt at correct tonation, "just how long we have until the radiation from the cc begins reaching us."

"You have," Beldan answered without hesitation, "just under seventeen of your years. At that time, levels will rise sharply and dangerously. They will continue to rise for many years thereafter."

"I see." Rao showed no emotion. Clark had the feeling he was testing Beldan, but could not see just what he was driving at. "You say you are from near the core. Did any members of the party you are traveling with actually see the explosion begin?"

"No," said Beldan, "but my father did." He seemed uncomfortable, as if the question had awakened unpleasant memories. He reached into a concealed pocket in his robe—Clark noticed as he did so that his arm moved as if it had two elbow joints instead of one—and pulled out a small tube of intricately shaped black metal. Clark's first reaction was to fear that some unintentional offense had been given and the tube was a weapon. Then Beldan took its end in his mouth and Clark was reminded of himself lighting up a cigarette in a moment of unusual anxiety. But Beldan didn't smoke it—he played it. It had holes and buttons arranged for Kyyra fingers, and he blew it and manipulated the holes to produce a brief but haunting fragment of melody, in a sweet tone pitched at least an octave below what should have been coming out of such a small tube.

He broke off in mid-phrase, with a hint of what might have, been amusement. "'You seem surprised. You must learn to take no notice of this, most Kyyra carry a music-pipe and may use it at any time.'" He played a few more notes, then stopped and looked back at Rao. "You were saying, Mr. Rao?"

Rao stared at the music-pipe with unabashed curiosity for a few seconds, then looked Beldan in the face. "I am a little puzzled by your offer of help. Can you tell me if your mode of faster-than-light travel is the same one you saw the *Archaeopteryx* using?"

"There are differences in detail," said Beldan, "but the principle is essentially the same."

"Then I remain puzzled. We have thought about the problem and could see no conceivable way, in the time available, to build and launch enough starships to carry any sizable fraction of our population."

"Nor would we try to do it with ships."

"Then what would you use?"

"Your planet," said Beldan. "The Earth."

Out of the corner of his eye, Clark saw Sanchez looking much more startled than he normally allowed himself to look. Rao just kept staring skeptically at Beldan, waiting for clarification. After a momentary pause, Beldan went on, "Surely you do not imagine that we would attempt to move a population in tiny individual vehicles such as the one in which we came to this meeting. That would indeed be hopeless, Mr. Rao. But please remember that we Kyyra have been a technological civilization far longer than you. We have learned a few things you have not had time to begin exploring yet. The vehicle in which we came is a mere landing shuttle sent from the much larger starship which your observers saw parked in orbit around your planet. And that starship is but one member of the convoy accompanying one of the home planets of the Kyyra. The planet itself was converted in its entirety to a ship to carry the billions of passengers who were born there."

Clark trembled with excitement—and fear. If Beldan was telling the truth, the abilities of the Kyyra just might be awesome enough to do what mankind needed. But would it carry a price equally awesome?

That was one of a whole chain of questions burning in his mind, questions which he or somebody would eventually have to ask the Kyyra. But right now it would be prudent to wait.

He heard Sanchez ask, "What do you use for fuel when you convert a planet to a starship?"

"The planet itself provides the fuel," said Beldan. He again put the music-pipe to his lips and played a tune made of high, long notes, simultaneously shrill and plaintive.

Clark fought down the last temptation to ask his questions now, and decided to intervene before somebody else did. "We are grateful for your offer," he told Beldan, rather stiffly. "You'll understand that we will need to have more details, and time to consider..."

"Of course," said Beldan, and went back to his piping.

"We need time to consider even what you've said so far. Would you object to ending this discussion now and resuming it tomorrow?"

"Not at all," said Beldan. "You will take us back to our shuttle in the car?"

"We were hoping," Clark said, recognizing even before he started that the point could be awkward, "that you would accept our hospitality and stay in special quarters we've prepared for you here, as our guests. If it's not inconvenient."

"It is a matter of indifference to us where we stay," Beldan assured him. "We don't wish to put you to any trouble, but if you prefer that we stay in your quarters, we will be pleased. If you will only take back to our shuttle long enough get a few things..."

"Of course." That had been easier than he had feared it might, allowed himself the luxury of feeling relieved. Only later, when Kyyra trio was securely quartered for the night and the other humans were out of questioning range, he allowed himself to really consider what he faced in the upcoming rounds of questions and decision and he whistled softly at the enormity of it. *Wow*, he thought. *No rest for the wicked, they say...*

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VII

Clark spent enough time at Kennedy Spaceport to rate his own apartment there. He retired to it as soon as the Kyyra were secure in theirs, and late that evening he sat on the edge of the bed in his bathrobe, staring at the telephone. A shower had helped to clear his mind, but as he sat there pondering whether or

not to make the call, he felt the loss of Dianne more acutely than ever before. He had hardly realized at the time how much she had helped him through rough spots in the years of university jobs, industrial jobs, and finally this one that he had held for the last ten years. She had helped simply by being there to talk to, even about things that he found difficult to discuss with anyone else. The mere act of talking about them had often seemed to dissolve the difficulties surrounding tricky decisions. Now, more than ever, he needed somebody to talk to.

Only Dianne wasn't here now.

The most immediate problem he faced was, to tell Gerber about all this, or to put it off. Franz Gerber was the head of the United Nations and therefore technically not even in the same chain of command as Clark, the World Science Foundation was officially an entirely separate organization. But in practice the two, agencies cooperated so closely in such matters as international space programs and ecological decisions that sooner or later Gerber would have to be brought into this. It was more essential to notify him, in fact, than to notify Clark's nominal superior. The WSF Commissioner-of Grants had evolved into such a sinecure that in fact Clark himself now held the highest responsibility in that area.

Calling Gerber would be, to put it bluntly, a way to get rid of that responsibility. A part of Clark longed to do that. He had never felt comfortable about making decisions that deeply touched the lives of many people. As Lieutenant Commissioner he had to grant or deny research funds, but that had never seemed to be at all the same sort of thing as this. This went so far beyond that that the sooner it was turned over to the UN, the better.

Almost convinced, he reached out for the phone—and then drew his hand back, hesitating again. *On the other hand*, he suddenly found himself* thinking, *the stakes are so high that I'd hate to let anybody else in on it before I'm sure it's the right thing to do. Even Gerber.*

Gerber would be angry, of course, if he found out that Clark had been holding out on him. That was even a real possibility. Yet somehow, at the moment, it seemed much less important to

Clark than he might have thought it would.

"*Nobody has to go,*" he had told Rao, back in his office—just this morning, he realized with sudden amazement. It had been an in—'credibly long day. "*Nobody has to go.*" That had been true, for the kind of scheme they had been discussing then. Beldan's proposal introduced a whole new element. Under it, everybody had to go—or nobody. Every man, woman, and child in every country on Earth, every fish, whale, caterpillar, and alligator. Everybody and everything on Earth was directly and irrecoverably affected, and everybody and everything on Earth had to go along with the same decision. There was no individual option.

And that, he thought glumly, *is simply and literally a kind of decision that nobody before me has ever had to make. How I'd love to pass the buck—and how afraid I am to do it!*

He continued to stare at the telephone, but his hand lay limp in his lap. An ironic thought crossed his mind and he laughed. "Alas, poor Hamlet!" he said aloud.

There was a knock at the door.

Clark looked up, startled. "Who is it?"

"Rao," said a muffled voice. "May I come in?"

Clark hesitated very briefly, frankly irritated. Then he said, "O. K. Just a minute." He got up, drew the

robe tighter around him, and went to unbolt the door. Rao thanked him with exaggerated graciousness and came in, still in the same turtleneck suit he had been wearing in his office so long ago this morning. Each of them took one of the two armchairs, Clark settled back and waited wearily for Rao to state his business.

“Since you brought me here as a scientific consultant,” said Rao, crossing his legs and staring straight at Clark, “I feel justified in raising a couple of questions about this Beldan character and his offer. Perhaps you’ve already thought of them, but I’d rather not take chances. So please indulge me, Mr. Clark. First, I trust that in considering any offer, you will give due thought to the question, can we trust them?”

“I’ll certainly try to,” Clark said coolly. “Do you have something specific in mind?”

“Not too specific, Mr. Clark, not too specific. I merely want to make sure you are fully conscious that, although we do not yet know the details of their offer, they are certainly going to involve drastic changes in the Earth. Leaving the sun... using up large portions of the Earth as fuel... manipulating energies so vast that we can hardly imagine them, much less control them. If they can actually manipulate energies of that scale, they could do tremendous damage as easily as useful work. And since the methods are beyond our own capabilities, we would be at their mercy. We would have only then-word that they will actually use those energies in the way they have promised. So I must ask, can we trust them?”

“I’ve thought of all that,” Clark said uncomfortably. “In case you’ve forgotten, I’m not just a politician. I’ve put in some fair years as a scientist and engineer.”

“I know, Mr. Clark,” said Rao, with a grin that was a shade too amiable. “Do not be offended.” He paused and then said, “Secondly, I was struck by the fact that neither you nor Counselor Sanchez inquired about their motives for the offer. Even for a race accustomed to dealing with enormous energies, surely converting an entire planet to a super-c intergalactic transport is not a casual undertaking.”

Clark nodded vigorously. “I know. I assure you that question was very much in my mind. *What’s in it for them?* But I do believe my *diplomatic* judgment is better developed than yours, Dr. Rao. We don’t know enough yet to gauge what their response to such a blunt question would be. Quite conceivably they would take offense—possibly even to the extent of withdrawing the offer. I most definitely wanted to avoid risking that. They may be our only chance, and their motives may be straightforward and legitimate. I certainly intend to ask them, in good time. But today wasn’t a good time.”

Rao, characteristically, shrugged. “Well, you had *better* ask,” he said. “And not merely out of idle curiosity. I smell a rat.”

Clark looked at him sharply. “Why?”

“Do you recall Beldan’s response when I asked whether any of their party had actually witnessed, the beginning of the core explosion?”

Clark thought, then remembered. “He said no, but his father did.”

“Exactly. Now admittedly, there* may be some ambiguity in what is meant by ‘witnessing the beginning of the explosion’. In a sense, we will do it ourselves in seventeen years. But I surmise that in the case of the Kyyra, it means more than that. Since we are also told that the home planets of the Kyyra were near the core, I think it is reasonable to assume that Beldan’s statement implies that his father was *nearby* when the explosion began. In other words, that Beldan’s father witnessed the beginning of the explosion from somewhere among their home planets, which are near the core.”

Clark frowned. “So?”

“Mr. Clark,” Rao asked, “how long do you suppose the Kyyra live?”

Clark did not relax his frown. He didn't see yet what Rao was leading up to, but he did sense that he was leading somewhere. “I can hardly say. Our total contact with them has been a matter of minutes—or hours, perhaps—”

“Granted. But let us deal broadly, with orders of magnitude. Does it not seem that, in view of their similarities to us and what we know about lifespans of terrestrial animals, their lifespan is far more likely to be measured in decades, or centuries, than in longer units?”

“I suppose so. But—”

“Then consider this. Beldan's statement implies that their migration has been on its way for not more than two generations. Let us suppose that means a hundred years, measured in the frame of reference of their motorized planets. There are two possible ways to achieve that at super- c velocities, as you may recall. How familiar are you with the time and energy considerations in operation of the paratachionic drive, Mr. Clark?”

“Casually. If it's crucial to your argument, maybe you'd better jog my memory.”

“It's crucial. You will recall at once the Einsteinian time dilation effect that becomes pronounced as you approach the speed of light from below. Conveniently understood in terms of space-time diagrams except that it now turns out, thanks to me and Chang, that space-time diagrams don't mean what we used to think they did. We don't really know what they mean any more. No matter, we know empirically what the time situation is in super- c . You get the same time dilation effect at n times the speed of light as you do at one- n th of the speed of light. So if you run a ship either far below c or far above it, you get little time dilation and shipboard time is nearly the same as galactic time. If you run close to c , either above or below it, you get a large time dilation effect and the closer to c you are, the *shorter* shipboard time is compared to galactic time.

“We have established that ship's time for the Kyyra migration to this point has probably only been on the order of a century, and we know they're running faster than light and they've had thirty thousand light-years to come. They could have achieved this *either* by running much faster than light, in which case galactic time for the trip would also be close to a century, *or* by running *very slightly* above the speed of light, in which case —”

“—galactic time would be close to thirty thousand years!” Clark finished in unison with him, suddenly seeing at least part of what he was driving at. “But we know that the galactic time *was* close to thirty thousand years, because Beldan's father was at home when the explosion happened. If they'd been using the higher speed, they wouldn't have even started until a hundred years ago.”

“In which case,” Rao nodded, “the beginning of the explosion would have been thousands of years before Beldan's father's time—and very likely would have wiped out the species before they even had time to think about launching a trip at this late date. In fact, for just that reason, they must have set out not long after the explosion. Just how long depends on how close it was, but from Beldan's description, there must not have been very much safety margin. Yes, Mr. Clark, they have been operating their planets and the ships that accompany them at an absurdly slow velocity—probably not more than a thousandth of a percent greater than the speed of light. And that is very strange.”

Clark dimly saw why. “Because of the energy considerations?”

Rao nodded triumphantly. “Yes. Just as the time dilation is the same for reciprocally matched speeds above and below c , so is the kinetic energy—and that means fuel required to achieve that speed. A

speed of two c requires the same energy as one-half c , the discontinuous transition between those two speeds involves no net energy use. A speed of one hundred c in principle requires as little energy as one-hundredth c . We only bother to accelerate farther than that because the transition is far easier to induce at a speed where the barrier is narrow. But we've never even considered accelerating farther than about two-thirds c before jumping into super- c . With complete mass conversion and an all-photon exhaust, a one-way trip like that needs a mass ratio well under ten. But the 1.00001 c the Kyyra seem to have been using takes the same energy as five nines c —and with the same assumptions, that's a mass ratio of about a hundred thousand.“

Clark saw it all now, and his mind was wide awake and racing. Rao's point was not merely valid—it was staggering. “In other words,” he said softly, getting up and pacing the floor, “no matter how they did it, they've gone to a tremendous amount of trouble and expense to go very slowly—when it would have been not only easier and cheaper, but you'd think more desirable, to go faster. Why? They must have had some pretty compelling reason to do that...”

And in that instant he knew he wouldn't sleep much that night.

END OF PART 1 - TO BE CONTINUED