In the chronos, the War in Europe was on its last, and the War in the Pacific was being waged relentlessly. The emphasis on Europe was, as the historians can now say, because Hitler's invasion of Norway touched off a line of consciousness, since Norway was perhaps the only major supplier of "heavy" water, deuterium oxide, and because the discovery of the fission of U-238 had been in Germany in 1938 by Hahn and Strassmann.

Oddly, some of us were sort-of in on our program, vaguely. Work on the proximity fuse had been top priority, and through 1942 and 1943 the only thing we got hung up on was that the Navy used a mixture of tallow and graphite as a "luting" compound; that's the stuff put on pipe threads to keep them from leaking. Well, we needed a fifty-gallon drum of the stuff, but the Ration Board said we must have fifty thousand red stamps since tallow, theoretically, was edible. (Not me, Uncle Joseph!)

Then one fine day, we got a notice from the War Production Board that instead of plating the parts with cadmium, we must use zinc. Zinc? Why zinc? Aren't we hot enough to ask and take parts from the battleship-building program?

Well, yes, said one of the senior scientists at Crosley, picking up his copy of Pollard & Davidsons *Applied Nuclear Physics* and pawing through the appendix that listed what was known at the time about isotopes—and pointed out that cadmium had a long list of neutron-absorbing isotopes. *And,* says he, *someone* is playing around with *atomic energy.*

Well, as I said, the struggle was about over, but a lot of it remained, and this was no time to pause.

But we had concluded the crash program to write manuals for sonar, and I was in the awkward position of being without a job. However, one of the top Navy officers with the crash writing program suggested that they *might* be able to use me on a radar program at the Submarine Signal Company, in Boston. I went and was interviewed and was accepted—provided I got clearance. One did not swap jobs without approval from his draft board, nor change addresses, nor anything. And to do anything, one had to fill out forms in multiplicate and return them through channels. I won't imply that this was a go-to-or-else, but I received a reply from my draft board with A) a 1-A draft classification, and B) approval to change my residence and accept the position from SubSig. *And* C) a form

which, properly filled out in multiplicate, requested that I be deferred from the draft since I was occupied in a position of importance to the war effort.

I left for Boston the following morning, a bit hung over because the night before had started the morning before: it was the cessation of hostilities in Europe.

The guy at the bar said that he hadn't heard the news, and if he did, he'd have to close up, and why didn't we keep our big mouths shut!

Boston has no slums. It has a lot of "historic sites," and I lived in one of them, not far from the Fenway. I was hard at work when the telephone rang. I was told that the radio (Radio? That's a cabinet that gives noise with the pictures out) just said that an atomic bomb had been dropped on (sounded like Iwo Jima, but that wasn't right, was it?). I said, "No, but get off the phone, I've got calling to do!"

"John, did you hear the news?"

"No, what news?"

"Says we dropped the atom bomb on Japan."

"Oh, my God! It's *started"*

World War Two was ended, and after another wild night of relief and celebration, two more things took place.

First, I was out of a job once more, and no draft board to control my comings and goings. They'd given me a draft classification that put me shoving a broom along Massachusetts Avenue *IF* and *AFTER* the enemy walked along the streets of Boston. Second, John W. Campbell went the way of the prophets of doom, and it quickly became boring to hear him lecture that New York City was going to disappear in a ball of "incandescent flame" within five years. (I'm aware that there are "incandescences that aren't flame, but I fail to know of any flame that isn't incandescent!)

With no job, but with remaining expenses, and with industry busy undoing what had been done in 1942 without making new plans yet, one takes up writing whole-time.

Robert A. Heinlein called from Philadelphia; they were folding up their apartment and about to trot back to California with a cortege of a few of their friends they'd found pleasant during the war years, and would I join

them? Well, not yet. Maybe later. L. Sprague de Camp said he'd been saved by the bell; it turned out that for some oddball reason he had been the ranking officer at a time when there was a squadron of destroyers that had to be run from Philadelphia to Norfolk and he, with a Naval Reserve status, would have been in command. Henry Kuttner and C. L. Moore, now that their place on Laguna Beach was open and free once more, took no time to go back home.

John, who had been beating the management of Street & Smith to let him start a real science magazine, got a cold turkey instead. Back in the barnstorming days, there were a number of pulps about flying, real shoot-em-up jobs in aircraft reminiscent of those biplanes that shot King Kong off the Empire State Building in his first appearance, and one of them was a Street & Smith pulp known as *Air Trails.* But the years had passed, and Lindbergh had crossed the Atlantic, and commercial air traffic had been going on, and the shoot-em-up air story lost its flavor, and *Air Trails* meandered into a sort of semi-technical book about glider operations, with substantial sections about flying models, but the public was losing track of that, too.

John was told that if he wanted a real science magazine, why didn't he take on *Air Trails* and slip the editorial policy and slowly slide the title into his project.

And that was going to take some time, and a lot of some doing, because when you change the editorial policy that much, those who bought it for what it was, now drop it because it isn't any more. And those you would like to pick it up won't look at it now because they couldn't know that it was changed. This meant that John was going to spend most of his time on the conversion, and the least of his time on *Astounding.* In other words, he needed help to handle the groundwork.

John had an excellent secretary-assistant, one Katy Tarrant, who kept the Ts all crossed and the Is and Js dotted, and carefully removed, with a blue pencil, anything that looked even slightly blue. But she was not to make editorial decisions. John hired L. Jerome Stanton to be an editorial assistant, to read the slush pile, to select (at regular intervals) the series of possible stories that counted into the whole book-length for *Astounding,* that John was to review and select. Incoming works were divided, as always, into two piles, those from the known writers and those from the unknowns, but now John read only those from the known writers, and L. Jerome read the slush pile and forwarded anything that looked reasonable to John for final approval.

And I, living in one of the points of historical interest in Boston, was slowly running myself into the ground. There were, at the time, only two strings of magazines that were worth working for: Street & Smith's *Astounding,* and Standard Magazines' twin science fiction books *Startling Stories* and *Thrilling Wonder.* One fills the files rather quickly when one writes only as a sole occupation and there are only two markets.

* * * *

What brought everything up short was "Catspaw," which comes out-of-line in the chronology because it was too long to fit well into *Astounding's* format. Fred Pohl, an editor at Bantam Books, clocked it to be 15,000 words, but John paid for 20,000 and yelped (in one of his eight-page letters) that if I'd made it another 5,000, and put in a cliff-hanger, he might have printed it as a two-part serial. He went on to point out that the George O. Smith inventory was too high, and that the S&S auditors were breathing down his throat because he was buying G.O. Smith faster than he could print it. And was I a reincarnation of the fabulous Frederick Faust?

So the publication date of "Catspaw" has no connection to when it was written.

"Catspaw," by the way, is based upon the idea that something that sounds just swell might be deadly. The platitude about looking the gift horse in the teeth is, just that, a platitude; one might very well eyeball the gift horse critically because it might not be the horse you'd want your daughter to ride.

Altruism is a myth. There ain't none. Everything is done with some purpose in mind; it may be personal, or it may be for the benefit of a group, or a sect, or a society. For example, the Eighteenth Amendment was passed to upgrade the morals and ethics of life in the United States by eradicating the Demon Rum from our society. That's the way it was put to us, and that's the way it looked for enough of the people to pass it. But as it stood, organized crime might well have put their own effort to the bill because, in those years, the Eighteenth Amendment did more for organized crime than it did to raise the society toward purity.

The Catspaw

By George O. Smith

Thomas Barden slept fitfully. The dream was not nightmare, but it was annoying. It was like the important thought that does not quite struggle up through into consciousness but which remains unformed, though the mind is aware of the hidden importance. It was like trying to read small print through a silk screen, or to see fine detail through a sheet of florentine glass.

Furthermore, it was recurring.

Strangely, Tom Barden seemed to know that there was something strange about the dream, that it was more than just the ramblings of the subconscious mind. He knew that there was something to be gained by permitting the dream to run while he watched, so to speak. But the trouble was that the dream could not run so long as he remained cognizant enough in sleep to make mental notes. When he slept deep enough to permit the strange dream, he was deep enough to lose track of the delicate, and so very alien, train of thought.

The fitful sleep itself was a contributing factor to ultimate success. Since he slept not, he became drowsily tired, and found himself lying wide awake time and again with strange semi-daydreams in which conscious thought and dream intermingled in a bizarre fantasy of fact and fiction.

He had been asleep or awake for hours. It was nearing four o’clock in the morning when Tom Barden slipped into a prolonged half-sleep and the dream, as it had before, came again.

He slipped into sleep, and in dream he saw himself luxuriously lounging on a broad couch. Above his head was a draped canopy of silk, its draped folds hanging low in a gorgeous pattern of silken folds. It was gently tinted in delicate colors that blended in a complete lack of regular pattern. It seemed more beautiful for lacking pattern than it could have been with any regularity.

It was non-ending, that canopy. From the draped dome above his couch the silken cyclorama fell in a colorful swirl to the floor where it folded over and over somewhere miles below the couch.

He—was isolated. He was protected. No intrusion could come, even though Thomas Barden wanted the intrusion. Certainly, if he denied entry,

nothing could enter.

And yet he knew that beyond the many layers of flowing silk there was something demanding entry. He could not see nor hear the would-be intruder. He could not even see motion of the silk to show that there was such a being. Yet he seemed to sense it.

And when, finally, the intruder breached the outer layers of shrouding silk, Tom Barden knew it and was glad. Course after course of silken screen was opened by the intruder, until finally the silk parted before his eyes and there entered—

Sentience!

* * * *

It was without form and void.

But it was sentience and it was there for a definite purpose. It came, and it hovered over Thomas Barden's broad couch, and its thoughts were apparent. It was in communication with another sentience outside—

"I am in."

"Good," was the mental reply, also clear to Thomas Barden. It was not a direct communication from the other. It came relayed through the sentience above his bed, and since he was in direct mental communication with the other, thought and reply were clear also to Barden. "Good," replied the other. "Be quick and be thorough. We may never return!"

"You, sentience, listen for we have too little time. Those of your system are numbered in the billions, and of them all, you are the only one we have been able to contact, though we have tried constantly for several years.

"As I communicate with you, your subconscious mind is being filled with a specialized knowledge of a science new to you. This science is not foreign to you, for it would normally follow the paths of discovery, yet you are not quite ready to discover it for yourselves. We give it to you, knowing that it will only speed up your advancement, and it will not cause a passed-over space in the normal trend of advancing technology."

"Why are you giving this to us?" demanded Barden.

“A natural caution. You fear the complete altruist. I’ll explain. This science will enable you to develop your spacecraft drive into a means of interstellar travel. This science is known to us. We are using it now. However, there is a political difficulty on our world. We have two factions. One faction wants conquest and subjugation of all systems that are less fortunate in their sociological and technological development. The other faction believes that any kind of subjugation of another people will lead to war upon war, in pyramiding terror. I and my friends are members of this second belief. Since the first group has control, they are preparing to sweep out from our system with their ideal in force. The only way that subjugation of your race, complete with the attending strife, may be stopped, is for you to have the same technological developments. Once you meet us as an equal, thoughts of enslaving you cannot exist.”

“Logical,” admitted Barden.

“This science is entering your subconscious mind. It will not be clear to you for many days. I’d suggest rest and contemplation, but not heavy concentration. Learning is a matter of accepting facts and filing them logically in the subconscious mind. Unlike a course of study where fact follows fact, this knowledge is being poured in at high speed. Your subconscious mind is very much like a librarian who has just received a complete file of facts on a new world. Unfortunately, these facts must be evaluated in terms of your own world and your own thought. After evaluation, they must be filed in the proper order. The subconscious never sleeps, but it will take time before the logical order is complete. At that time you will be able to speak with authority on the subject.”

“I hope,” replied Barden.

“You must! For we have had enough of war and talk of war. War is never fought between peoples who respect one another’s ability. Take this knowledge and use it. And some day, when you get the honest chance, pass it along to another race, so that all men can be equal throughout the galaxy!”

The outsider made swift thought, “Quickly, for the veil thickens!”

“I must go. It would be dangerous for us both if I am trapped here when the veil closes. Just remember the billions of your men and the constant attempt to penetrate the mind of any one of them. Even this was sheer chance, and it is failing—”

The sentience withdrew after a warning cry from the one on the

outside. The silken screen closed, joined, and flowed to the floor without scar.

Barden was once more alone, protected, isolated.

Three weeks. It took Barden three long weeks. He awoke after the initial contact with the alien, and following the alien's advice, considered the matter coolly. It might be true and it might be a dream, but the fitfulness of his nature was gone. Barden then turned over and entered the sleep of the just for nine hours. After this awakening, he contemplated the dream and found it true.

Amazement at the accomplished fact was high, but the flood of knowledge occupied Barden's attention. Things kept coming up out of the dark in his mind that made little sense; other things were clear and sharp, and Barden wondered whether these had ever been tried on Terra. They seemed so logical. Then, as the days passed, these disconnected facts began to match together. The matrix of knowledge became less broken as the days went by, and—

At the end of three weeks, the sentience was proven correct. Thomas Barden knew, and he knew that he knew the last detail of a new science.

His only problem was getting this science into operation before the alien world could come—

He was all alone in this. No one on earth would believe his wild tale. They'd lay it to a nightmare and offer him medical advice. If he persisted, Thomas Barden would be writing his equations on the walls of a padded cell with a blunt crayon when the alien horde came.

And to walk into the Solar Space Laboratory and tell them he had a means of interstellar travel, complete with facts and figures, would get him the same reception as the Brothers Wright, Fulton, and a horde of others. He would be politely shown the door and asked to go away and not bother them with wildness.

If he had time, he could declare the discovery of a phenomenon and offer it to the scientific world. Then, step by step, he could lead them all in the final disclosures, or even after a few discoveries had been turned over, he could act the part of a genius and force their hands by making great strides. He had too little time.

If he were wealthy, he could set up his own laboratory and gain

recognition by proof. To go to work for another laboratory would mean that he would be forced to do work that he felt unimportant for a sufficient period to gain the confidence of his superiors. To be his own boss in his own laboratory would mean that he would not be required to follow other lines of research; he could do things that would seem downright idiotic to those uninformed of the new science. That, plus the fact that not one of the large laboratories would care to spend a small fortune on the cold predictions of a young unknown.

Thomas Barden wondered just how many men had found themselves hating the everlasting Time and Money factors before. A fine future!

Barden pondered the problem for almost a week. That made a total of four weeks since the incident.

Then came a partial solution. He was an associate member of the Terran Physical Society. He could prepare a paper, purely theoretical in nature, disclosing the basis for the new science. It would be treated with skepticism by most of the group, and such a wild-eyed idea might even get him scorn.

Yet this was no time to think of Thomas Barden and what happened to him. This was time to do something bold. For all the men of science who would hear of his theory, a few of them might try. If they tried one experiment, they would be convinced. Once convinced, he would be given credit.

The paper could not be very long. A long paper would be thrown out for divers reasons. A very short, terse paper might get by, because it would show the logical development of thought. The reviewing members might think it sheer sophistry, but might allow it if for no other reason than to show how sophistic reasoning could build up a complete technology.

Barden began to make notes. A five-minute paper, packed with explosive details. He selected this fact and that experiment, chosen for their simplicity and their importance, and began to set them down.

His paper was ten pages long, filled with complex equations and terse statements of the results of suggested experiments. He sent it in to the reviewing board and then returned to his studies. For he would have to wait again.

* * * *

Barden faced the reviewing board exactly eight weeks after the dream. By this time he was getting resigned to waiting. Also, the hysteria that made him want immediate action was beginning to die in the face of logic. Obviously, the alien culture was not on the verge of heading Sol ward, or the alien mind would have told him that fact. He did mention that there was little time, but the alien would not have bothered if imminent disaster threatened.

Barden believed that the alien was cognizant of the difficulties of introducing a new science to a skeptical world—especially when done by an unknown. Perhaps if the famed Dr. Edith Ward had received the science, a word from her would have sent the men of all Terra, Venus, and Mars scurrying to make their own experiments. Of course, Dr. Ward was head of the Solar Space Laboratory, and could write high-priority orders for anything short of complete utilization of Luna. She would not require disclosure to have her theories recognized.

Tom Barden wished that she were a member of the reviewing board, for then she might be directly interested. But he noted with some satisfaction that the laboratory was represented. He faced the chairman confidently, though within him he was praying for a break.

“Mr. Barden,” said the chairman, “you are not familiar with us. Introductions are in order. From left to right are Doctors Murdoch, Harrison, and Jones. I am Edward Hansen, the chairman of this reviewing board. Gentlemen, this is Thomas Barden. You have read his brochure?”

There was a nod of assent.

“We have called you to ask a few questions,” said the chairman.

“Gladly,” said Barden. At least they were considering it. And so long as it was receiving consideration, it was far better than a complete rejection.

“This is, I take it, an experiment in sheer semantic reasoning?”

“It is more than that,” said Barden slowly. “Not only is the reasoning logical when based upon the initial presumption, but I am firm in the belief that the initial presumption is correct.”

Dr. Murdoch laughed. “I hope you’ll pardon me, Mr. Barden. I’m rude, but it strikes me that you are somewhat similar to the prophet who sneers at the short-range predictions, and prefers to tell of things that lie a hundred years in the future. By which I mean that testing out any one of your theories

here would require the expenditure of a small fortune. The amount to be spent would be far in excess of any practical laboratory's budget unless some return is expected."

"If the premise proves true, though," said Barden, "the returns would be so great as to warrant any expenditure."

"Agreed," said Murdoch. "Agreed. Just show me proof."

"It is all there."

"Mathematical proof? The only proof of valid mathematics is in the experimental data that agrees. And may I add that when experiment and math do not agree, it is the math that gets changed. As witness Galileo's results with the freely falling bodies."

Barden nodded slowly. "You mean that mathematics alone is no proof."

"Precisely. Figures do not lie but liars can often figure. No offense, Barden. I wouldn't accuse any man of willful lying. But the math is a lie if it is based on a false premise."

"You have no experimental data at all?" asked Harrison.

Murdoch looked at Harrison and smiled tolerantly.

"Since Mr. Barden is not independently wealthy he could hardly have made any experiments," said Murdoch.

Dr. Hansen looked at Barden, and said, "I believe that you have stumbled upon this line of reasoning by sheer accident, and so firm is your belief in it that you are making an attempt to have it tried?"

Barden smiled. "That is exactly right," he said earnestly.

"I do admire the semantic reasoning," said Hansen. "I am admittedly skeptical of the premise. Dr. Jones, you represent the Space Laboratory. This seems to be right in your department. What is your opinion?"

"If his theory is correct, great returns are obvious. However, I am inclined to view the idea as a matter of sophistic reasoning."

* * * *

Barden hastened to get Dr. Jones' attention. "Look, sir. The same relegation of a theory to sophistic reasoning has happened before. Admittedly, this is a new science. So have been several others. Someone must discover them in one way or another. The entire science of electronics was discovered in this way—Maxwell formulated the electromagnetic equations. Hertz made the initial experiments many years later. Marconi reduced them to practice, and then a horde of others came forth with their own contributions. Yet the vast technical holdings throughout the electronic field were initially based upon the mathematical predictions made by Maxwell."

"You seem well trained in logic and reasoning," smiled Hansen. "That was a rather sharp parallel. Yet you must understand our feelings in the matter. First, Maxwell was an accredited scientist before he formulated the famous equations. Now if— and remember that big if—*if* this is a truly parallel case, we'd all like nothing better than to give you the acclaim you deserve. On the other hand, you expect us to foster you in your attempt to have millions spent on the experimentation you outline so logically. You must remember, Mr. Barden, that despite the fact that we, none of us, will have a prime function in the disbursement of any funds, we are nonetheless a primely responsible body. The fact that we permit you to speak will carry much weight. It will be a recommendation by us to the rest of the members. As such, we must be cautious."

"Is there no way for an unknown man to make a contribution to science?" asked Barden.

"Of course. Produce one shred of evidence by experimentation."

"The cost!" exploded Barden. "You admit that every piece of equipment will require special construction. There is nothing in the Solar System at the present time that will be useful."

"All of which makes us skeptical."

Murdoch spoke up. "We're not accusing you of trying to perpetrate a hoax. You must admit, however, that it is quite possible for any man to be completely carried away by his own theories. To believe in them thoroughly, even to the point of despising any man who does not subscribe to the same belief."

"That I do admit. However, gentlemen, I implore you to try. What can you lose?"

Hansen smiled wistfully. “About three million dollars.”

“But think of the results.”

Hansen’s wistful expression increased. “We’re all thinking of the result of dropping about three million dollars at the theory of a young, unknown man. It’s a wild gamble, Mr. Barden. We’re betting our reputations on ten pages of mathematics and very excellent logic. Can you think of what our reputations would be if your predictions were false?”

“But they are not.”

Murdoch interrupted. “How do you know?” he said flatly.

“I have—”

“Wait,” interrupted Murdoch again. “Please do not define X in terms of X. It isn’t done except in very cheap dictionaries. You see, Mr. Barden, you are very earnest in your belief—for which we commend you. However, self-determination is not enough to produce a science. Give us a shred of proof.”

“Have you reviewed my mathematics?” demanded Barden.

“Naturally. And we find your mathematics unimpeachable. But an equation is not a flat statement of fact in spite of what they tell you. It is not even an instrument until you deduce from the equation certain postulates.”

“But—”

“I’ll give an example. The simplest form of electronic equation is Ohm’s Law. Resistance equals Voltage divided by Current. Or. simpler: E equals IR. That has been proven time and again by experiment. Your equations are logical. Yet some of your terms are as though we were working with Ohm’s Law without ever having heard of resistance as a physical fact in the conduction of electricity. Your whole network of equations is sensible, but unless you define the terms in the present-day terminology, we can only state that your manipulation of your mathematics is simple symbolic logic. You state that if P implies notQ, such is so—and then neglect to state what notQ is, and go on to state what you can do with P. Unless we know your terms, we can’t even state whether you are dividing by real or unreal factors.”

“I see that you are unimpressed.”

“Not at all. We hoped that you might have had some experimental evidence. Lacking anything material to support your theory—” Hansen spread out his hands in a gesture of frustration.

“Then I’ve been wasting my time—and yours?”

“Not entirely. Will you speak on your paper as an experiment in sheer semantics?”

Barden considered. Perhaps if this could be presented as such it would be better than no presentation at all. Let them think him a crackpot. He’d win in the end. He would give his talk on the basis mentioned, and then, if there were any discussion afterwards, he might be able to speak convincingly enough to start a train of thought.

“I’ll do it,” he said.

“Good,” said Hansen. “The ability to think in semantic symbols is valuable, and every man could use a better grasp of abstract thought. Your paper will be presented next week, here. We’ll put you on the schedule for one o’clock.”

* * * *

Confidently, Tom Barden faced the sectional group of the Terran Physical Society and made his talk. He noted the interest present on every one of the eighty-nine faces. He prayed for a good reception, for he might be asked to present this paper at the international meeting, later. He felt that he was getting an excellent reception, for he had their interest.

He finished his speech and sat down. A buzz filled the room during the recess before discussion, and Barden saw with considerable interest that heads were nodding eagerly. Then the chairman rapped with his gavel.

“There will now be an open discussion,” he said.

The buzz stopped.

“Any questions?” asked Chairman Hansen.

A hand went up near the back, and was recognized.

“I am Martin Worthington. I wish to state that the logic is excellent, and the delivery was superb. May I ask if the pursuit of such impeccable logic is a matter of training, logical instinct, or by sheer imaginative power, did Mr. Barden momentarily convince himself of the truth of his premise and build up on that basis?”

Barden smiled. “The latter is true. Also, Mr. Worthington, I am still convinced of the truth of the basic premise.”

The hall rang with laughter.

When it died, Barden continued. “Not only am I convinced of the validity of this theory, but I am willing to give all I have or ever hope to have for a chance to prove its worth.”

“Then,” said Worthington, “we are not so much to be impressed by the excellence of semantic reasoning as we have been. True sophistry is brilliant when the murderer admits that his basic premise is false. Sophistry is just self-deception when the entire pattern is a firm conviction of the reasoner.”

The crowd changed from amusement to a slight anger. The speaker, Barden, had not presented a bit of sheer reasoning. He had been talking on a theme which he firmly believed in!

Another hand went up and was recognized. “I am William Hendricks. May I ask if the speaker has any proof of the existence of such phenomena?”

“Only the mathematical proof presented here—and a more complete study at home. These were culled from the larger mass as being more to the point. It is my belief that the force fields indicated in equation one may be set up, and that they will lead to the results shown in equation three.”

“But you have no way of telling?”

“Only by mathematical prediction.”

A third hand went up, a slender hand that was instantly recognized as that of Dr. Edith Ward.

“I wish to clarify a point,” she said. “Mr. Barden’s logic is impeccable, but it *is* based upon one false premise.”

Barden looked at the woman carefully. No one could call her beautiful, but there was a womanly charm about her that was in sharp contrast to the cold facts she held in her brain. She looked about thirty years old, which included the mental adjustment necessary to compare her with a younger woman. That she was the head of the Solar Space Laboratory was in itself a statement of her ability as a physicist.

And the fact that she condemned his beliefs was as final as closing the lid and driving in the nails.

Period!

“I believe that my own belief is as firm as Miss Ward’s,” retorted Barden.

“You will find that your premise may be valid, but the end result is not profitable,” she said flatly.

“You’ve experimented?” scoffed Barden.

“I don’t have to,” she said. “I know!”

“Perhaps by feminine intuition?” snapped Tom scathingly.

Edith Ward flushed, and sat down abruptly, rebuffed and angry. Chairman Hansen arose and tried to speak, but the wellings and mutterings grew from a low murmur to a loud roar that changed slowly from random sounds of anger to a chant of “Throw him out! Throw him out! Throw him out!” as more and more voices took it up. Hansen banged sharply with his gavel and finally the angry cries died again into the dull muttering.

“We are not a rabble,” said Hansen sharply. “I shall ask Mr. Barden to leave quietly. We will then continue with our regular business, and forget this unhappy incident.”

Barden left amid a sullen silence.

* * * *

That was that. That door was closed to him, finally and completely. Barden went home in a blue funk, and fretted for several hours. Then determination arose to show them all, and he consulted his notes again.

Time—and money!

Doubtless it had been the same cry a thousand years ago, and there was no doubt that it would be the same stumbling block a million years from now. Perhaps on a different planet of a distant sun if Terra were no longer a running concern, but it would always be the cry.

Well, he thought, considering both, he did not know how much time he had. He knew he had little money. Also, he knew that no matter what he did he would never know about the time factor, nor would he be able to change it much. Perhaps there might be some way to get money. If he was to be forced into the slow methods, and he failed, he would know that he had tried.

He took his mind from the ever-present problem of putting the science across, and started to inspect the new art from a dispassionate standpoint. It was his first try at looking at the technology from the standpoint of a scientific observer. Since the day of the dream, Tom Barden's one thought had been to initiate this development. Now, for the time being, Tom Barden went through his adequate storehouse of alien knowledge to see what other developments he might get out of it.

He grunted aloud. "If they won't let me build a better spacecraft, I'll build a better mousetrap!"

Then he laughed, for the new art was so complex and so well developed, and so far beyond the present science, that there were a horde of little items that could be put to work. The generation of spiral magnetic fluxes, for instance, would far outdo the machinist's magnetic chuck. No plain magnetic attraction this, but a twin-screw of magnetic flux lines throughout the chuck-plate and the metal work, fastening them together. There were means of developing a type of superspeed radio communication along a tight beam that could not be tapped. A simple method of multi-circuit thyratron operation that had both an ionization and a deionization time of a fraction of microsecond or even less. A means of amplifying true square waves without distortion—permitting the paradox of the voltage assuming all values between zero and maximum instantaneously during the rise of the wave from zero to peak. A card-file sorting system capable of maintaining better than three million items and producing any given item with a distribution of near-items on either side—all contained in a desk-cabinet and operating silently within a three-second interval. A magneto-physical means of exhausting vacuum tubes and removing occluded gases from the tube electrodes simultaneously. The latter could be kept in operation constantly during the life of the tube, if need arose.

He fastened on the latter. If it would generate the almost-perfect vacuum in a vacuum tube, it would also de-air electron microscopes and all other kinds of equipment.

It was simple, too. It was not one of the direct results of the alien science, but it was an item used to develop the science from present technology. Doing it would not introduce anyone to Barden's technology any more than a thorough knowledge of small intricate mechanisms would introduce a mechanician to the field of electronics. But one cannot delve into basic electronic theory without hitting some of the principles of moving machinery.

Thomas Barden made his plans. When the plans were made, he bought tools and parts, and went to work. Knowing every factor helped, and not many days passed before he had a working model of his magnetic vacuum pump.

He knew where to take it, luckily. He had worked for Terran Manufacturing, Incorporated, and because of his connection there he was not unknown to the chief engineer of Solar Electric. Terran was a small outfit, and though Barden felt that he owed it some loyalty, he felt that the mighty Solar Electric could better afford the price he was prepared to ask. Terran would dig it up—but Solar was prepared at any time for that amount.

And the alien race might not wait—

* * * *

He was ushered into the office of Hal Weston after an hour of painful waiting. The chief engineer of Solar Electric recognized him with a slight frown.

"You're the fellow who took off on Miss Ward, aren't you?"

"No," smiled Barden. "She happens to be the one who took off on me. I'm still right, and I intend to prove it!"

"Not here, I hope. Your card stated differently."

"I'm entering nowhere on false pretenses, Mr. Weston. My card states my offer completely."

"You have a means of developing an almost perfect vacuum and

simultaneously removing absorbed gas from any object in the inclosure?”

“Right!”

“Interesting, if true. Let’s see it.”

“I have not the equipment with me. However, I have here a ten-inch glass sphere made from a laboratory flask. In it are several coins, bits of graphite, spongy palladium, and some anhydrous copper sulphate. This tube was evacuated by my equipment, and there was no other treatment for removal of extraneous material.”

“May we check that?”

“That is why I brought it along—for your own satisfaction.”

Weston spoke into the communicator on his desk, and in a minute the door opened to admit an elderly man in a white coat. Weston gave him the flask, and said, “Dr. Grasse, this flask is supposed to be totally evacuated and all absorbed gases removed, as well as water vapor. I want a precision quantitative analysis of everything inside of this flask. And,” he grinned, “get the results to me by day before yesterday.”

“Now,” said Weston to Barden, “granting that this is the real goods, how large can it be made?”

“It takes about four kilowatts per liter,” said Barden. “Since the process takes only about ten seconds, the demand is quite high over a short period. But bearing in mind the four KW per liter, you may make the thing evacuate any volume up to the practical limit.”

“Nothing for a home appliance,” laughed Weston. “But if it will drive the spitting devil out of an electron microscope in ten seconds, it’s worth it. What are you asking for rights and royalties if it performs as you state?”

“Mr. Weston, I’m interested in one thing only, and that is to prove the value of my theory—the one that Edith Ward scorned.”

“We’re not interested in your theory, save as a theory,” said Weston.

“I don’t want a position. I want enough immediate money to set up my own laboratory.”

“You’ll make a lot more if you take a small option now and accept a

royalty, you know."

"I'll sell it outright for five million."

"I'm afraid that we can't settle that amount in one afternoon."

"That's all right," said Barden. "Get me twenty-five thousand as an option. Then take ten days to build one or to investigate all you want to. If it does not perform, I'll return your money. If it does perform, five million goes."

"Contingent upon Dr. Grasse's findings," said Weston. "And providing that you give me your original equipment in order to save some time in making the initial investigations. I'll have the option agreement and a certified check in this office tomorrow morning."

Barden smiled. "I *know* what the evacuator will do. I'll be back tomorrow with the original machine!"

Barden's original was an un-neat bit of coils and conducting rods, and it looked out of place in Weston's office. But the chief engineer did not mind. He was gloating over the analysis, and checking the report made by one of the mathematical physicists on the theory of the operation of the evacuator. Both were more than satisfactory.

"You're in, Barden," chuckled Weston as he countersigned the option agreement. "Now what do we do?"

"Me?" said Barden. "I'm going to rent me a large empty plant somewhere, and start ordering equipment. I may even be back with a couple of other little gadgets later."

"If they're as good as this looks right now, they'll be welcome."

"I'll remember that," said Barden.

Barden's tracks were swift from there on. His first stop was to deposit the check in the bank, to the amazement of his teller, who felt forced to check the validity of the voucher, despite the fact that it was certified. To have Thomas Barden, whose average salary had run about a hundred-fifty per week, suddenly drop twenty-five thousand in the bank was—to the banker's point of view—slightly irregular.

Barden was not able to get out of the bank without having Mr. Coogan,

the president of the bank, catch him and ply him with seventeen suggestions as to how the money could be invested. Tom almost had to get insulting before he could leave.

The next month was a harrowing, mad maze of events. He rented an unused factory, complete with machine tools. He hired seven men to help him, and then ran into difficulties because he had to make the equipment to make the machines. He found that starting from complete behind-scratch was a back-breaking job. Daily, the railroad spur dropped a freight car to be unloaded with stuff from one of the leading manufacturers of scientific equipment. The electric company took a sizable bite when they came along the poles with some wrist-thick cables and terminated them at his plant. He ended up hiring three more men and putting them to making samples of some of the other by-products, knowing that his money would not last forever. The board of review had mentioned three million, but Barden was beginning to understand that despite all new types of equipment, they were still considering the basic physical laboratory as useful. They were right. It was a lot different starting from an empty factory and taking off from a well-maintained laboratory.

The days sped by and became weeks. The weeks passed and became months. And as the months worked themselves slowly past, chaos disappeared and order came from madness.

The by-products of the alien science came swiftly, and they sold well. Money flowed in fast enough to attract attention, and it was gratifying to Tom Barden to read an account of his “meteoric rise” that started from the day he “disagreed violently with the famed Dr. Ward.”

If he had wanted money or fame, here it was. But Barden knew the story behind the story, and he also knew that whoever the alien might be, from whatever system, and adhering to whatever culture, the alien would find no fault in his operations. He had taken the long, hard road, compared to the road taken by an accredited scientist producing such a theory. He cursed the delay, and knew that it might have cut his time down to a dangerous minimum.

But Tom Barden had become the genius of the age. His factory had grown to a good staff, all but a few of whom worked on the basic science he needed to develop. It was developing slowly but certainly, and each experiment showed him that the alien mind had been absolutely correct.

Daily he taught school for an hour. He knew every step, but he wanted his men to know the art when they were finished; the final experiment made.

They would emerge from this trial-without-error period as technicians qualified to work on any phase of the new science. It gave him no small pleasure to know that his outfit would eventually be far ahead of the famous Solar Space Laboratory in techniques pertaining to the art of space travel. He hoped to make Dr. Edith Ward sit quietly down and eat her own words—backwards!

His plans were not published, and the outpourings of by-products seemed high enough to any observer to be the sensible output of the many men working there. None but those who worked there knew that Tom Barden knew every detail of every gadget that hit the various markets, and that the work of making the initial models was not the result of many man-hours of experiment, but a few man-hours of building to plans that had been proven and in use.

He was not bothered until the day it was announced that Thomas Barden Laboratories were buying a spacecraft from the government.

The spacecraft was being delivered through the vast back doors of the factory at the same time that Dr. Edith Ward was entering the office doors in front.

* * * *

Barden met her in his office. “How do you do, Miss Ward.”

“How do you do,” she returned with extreme politeness.

“May I ask your business?”

“I am here as a representative of the Solar Space Laboratory.”

“Indeed? And what has the government to say?”

Edith Ward slammed her purse down on his desk. “You fool!” she snapped. “Stop it!”

“Don’t be upset,” he said in an overly soothing tone that was intended to infuriate. It succeeded.

“You blind fool. You’re to stop experimenting in that superspeed drive!”

“Am I?”

“Yes,” she blazed. “And I have official orders to stop it.”

“Miss Ward, you tried to block me before. You did not succeed. Why do you demand that I stop it?”

“Because it will not work!”

“You’ve experimented?”

“I have not because it is dangerous!”

“Then any knowledge you may have about this science is either guesswork or—feminine intuition?”

“You accused me of that before, remember?”

“I didn’t get away with it then,” said Barden. “But I can now. I was unknown then, remember? Well, remember again that I’ve advanced from unknown a year ago to my present stature now. And I might add that my present stature is not too far below your own, Miss Doctor Ward.”

“I have authority to stop you.”

Barden looked down at her with a cryptic smile. “Yeah?” he drawled. “Go ahead and try!”

“And do you think I can’t?”

“Nope,” he said.

“How are you going to stop me?” she blazed.

“I won’t have to,” he said. “Public opinion will. Don’t forget, Miss Ward, that people are still running this system. People are and always have been entirely in favor of the man who came up from nowhere and did things on a big plan. Haratio Alger died a long time ago, Miss Ward, but he’s still a popular idea. When you stop me, I shall appeal to the people.”

“In what way?”

“You wouldn’t be using your feminine jealousy to stall me while the Solar Lab develops the interstellar drive, would you?”

“You—!”

“Nah,” he warned her blithely. “Mustn’t swear!”

“Oh, damn!”

“Now look, Miss Ward,” said Barden quietly, “we’ve had our snarling session twice. Once when you laughed me out of the Terran Physical Society’s big meeting, and now when I tell you that I am big enough so that you’ll not stop me by merely expressing a personal opinion. Since I’m now big enough to command a little respect in my own right, supposing you give me some of yours, and I’ll see if I can find any in me to show you. Take the previous as a partial apology if you must. But I’m wanting to know by what basis you state that pursuing this job is dangerous—or, say, more dangerous than working on high-tension lines, or space travel as it now exists.”

“The theory you present has one danger factor. According to my own interpretation of your theory, the fields you require in your spacecraft to achieve superspeed are powerful enough to cause a magnetostriction in nonmagnetic materials. This magnetostriction is an atomic magnetostriction which causes the alignment of the planetary planes of the electron orbits. The result is a minor chain fission reaction that becomes major after the first nineteen microseconds.”

“My theory is that nothing of that nature will take place,” said Barden.

“Remember,” she said, “despite your dislike of me personally, that I am trained in physics. Therefore, my interpretation of physical phenomena and my predictions of such are more—”

“I agree,” interrupted Barden. “But again do not forget that this is a field that is new to all scientists.”

“Agreed again,” she said with a slight smile. “But I’ve had several trained men working on your theory. They agree with me.”

“Don’t believe that anyone can formulate an opinion on the material that you have available.”

“Oh, but we can.”

“Then you have experimented—”

“No, we have not.”

“Then exactly where did you get this extra information?” demanded Barden.

Dr. Edith Ward looked at Tom Barden carefully. “From the same place where you got yours!” she said, slowly and deliberately.

Barden wondered, *did she know?*

He grinned. “I dreamed mine,” he said. “Everything that I’ve produced emanated from a dream.” Then Barden embellished it thoroughly, knowing that the flagrance of his embroidery would sound like a lie to anyone who was really unaware of the truth. “I was invaded in a dream by a gentleman who used a mechanical educator on me and taught me everything that I’ve produced, everything that I’ve invented, and every advanced theory that I’ve had. I have become a scientist of an alien culture that I have full intention of making into a solar science.”

“Then it is true,” she breathed.

“What is true?” he demanded.

“Tom Barden, listen. Not only do I accept your apology of a few moments ago, but I offer mine. I—was afraid. Just as you were afraid to let the truth be known. I blustered and took my attitude because I could not let it be known that I, head of the Solar Labs, could be influenced by what the learned men would term either dream or hallucination.”

“You’ve had one, too?” he asked quietly.

She nodded.

Tom grunted. “Let’s compare notes,” he said. “Seems as how we got different stories out of our friends.”

Edith nodded again and said, “It was a strange dream that came to me one night about a year and a half ago. I was the soul and master of a mighty castle, an impregnable fortress with five roadways entering. Interpretation of that is simple, of course, the five roadways were the five senses. A... messenger came, but instead of using any of the roadways, he came through the very walls, and warned me.”

“Just what was his story?” asked Barden.

“That Sol was a menace to a certain race. This race—never defined nor located save that it was a stellar race—was incapable of conquering Sol, except by stealth. However, it could be done by giving one smart man a partial truth, and that it was more than probable that this would be done. The partial truth was the technique of a new science that would, if not used properly, cause complete destruction of the system. In the final usage, there would be a fission reaction of whatever planet it was used near. The reaction would create a planetary nova, and the almost-instantaneous explosion of the planet would wipe out all life in the system, and the counter-bombardment of the sun by the exploding planet would cause the sun itself to go nova, thus completing the process.”

“I presume your informant was quite concerned over the possible destruction of a friendly race?”

“Certainly,” she said. “That is why he contacted me.”

“If I were a member of the conquer-all faction of my story, Miss Ward, I would be trying to contact someone here, to warn them of a terrible danger if the science were exploited. That would delay our work long enough for them to arrive, wouldn’t it?”

“There is nothing so dangerous as a half-truth,” said Edith Ward flatly.

“Nor as dangerous as a little knowledge,” agreed Barden. “However, Miss Ward, my story is just as valid as yours. And since neither story may be checked for veracity, how do you propose to proceed?”

“I think you’d better stop!”

* * * *

Barden sat down on the edge of the desk and looked down at her. She was sitting relaxed in the chair alongside, though it was only her body that was relaxed. Her face was tense, and her eyes were half-narrowed, as in deep concentration. Barden looked at her for a moment, and then smacked a fist into the palm of his hand.

“Look,” he said, “that’s apparently what your informant wants. Now, as to veracity, for every statement you make about the impossibility of interpreting theoretical logic into a complete prediction of physical phenomena without experimental evidence, I can state in your own words that you can’t tell anybody what the outcome will be. You want me to stop. If

my story is true, then Terra will have interstellar travel and will meet this incoming race on its own terms. Either proposition is O.K."

Edith Ward muttered something and Barden asked what she said.

"I said that I wondered how many men were too successful in mixing nitroglycerine before they had one smart enough to mail the formula to a friend—before he went up. I also wonder how many men tried Ben Franklin's experiment with the kite and—really got electricity out of the clouds and right through their bodies and were found slightly electrocuted after the storm had blown over. Number three—novas often occur in places where there seems to be no reason. Could they be caused by races who have just discovered some new source of power? And double-novas? A second race analyzing the burst and trying their own idea out a few years later?"

"My dear young woman," said Barden, "your attitude belies your position. You seem to be telling me not to advance in science. Yet you yourself are head of the Solar Space Laboratory, an institution of considerable renown that is dedicated to the idea of advancement in science. Do you think that your outfit has a corner on brains—that no one should experiment in any line that you do not approve?"

"You are accusing me of egomania," she retorted.

"That's what it sounds like."

"All right," she snapped. "You've given your views. I'll give mine. You've shown reasons why both your informant and mine would tell their stories in support of your own view. Now admit that I can do the same thing!"

"O.K.," laughed Barden uproariously. "I admit it. So what?"

"So what!" she cried furiously. "You'll play with the future of an entire stellar race by rushing in where angels fear to tread!"

"Careful, Miss Ward. Metaphorically, you've just termed me a fool and yourself an angel."

"You are a fool!"

"OK, lady, but you're no angel!"

“Mr. Barden,” she said icily, “tossing insults will get us nowhere. I’ve tried to give you my viewpoint. You’ve given me yours. Now—”

“We’re at the same impasse we were a half hour ago. My viewpoint is as valid as yours, because there’s nobody within a number of light-years that can tell the truth of the matter. You are asking me to suppress a new science. Leonardo da Vinci was asked to suppress the submarine for the good of the race. He did it so well that we know about the whole affair.”

“Meaning?”

“That true suppression would have covered the incident, too. But the submarine was suppressed only until men developed techniques and sciences that made undersea travel practical. If I suppress this science, how long do you think it will be before it is started again by someone else? How did either of our informants get the information?”

“Why... ah—”

“By trying it themselves!” said Barden, banging a fist on the desk for emphasis. “Suppression is strictly ostrich tactics, Miss Ward. You can’t avoid anything by hoping that if you don’t admit it’s there it may go away. It never does. The way to live honorably and safely is to meet every obstacle and every danger as it comes, and, by facing them, learn how to control them. Shakespeare said that—’The slings and arrows of outrageous fortune... or nobler in the heart to take arms against a sea of troubles... and by facing them, to conquer them!’ That may be bum misquote, Miss Ward, but it is true.”

“Then you intend to try it out?”

“I most certainly do!”

Edith Ward stood up. “I’ve nothing more to say. You force me to take action.”

“I’m sorry, Miss Ward. If it is battle you want, you’ll get it. You’ll find it harder to quell Tom Barden The Successful than you found it a year ago when you shut off Tom Barden The Theorist with a word of scorn. I’m sorry—I really am.”

“Sorry?” she repeated with disbelief.

“Sure,” he said. “Barden Laboratories and Solar Labs could really go

places if we weren't fighting. Only one more thing, Miss Ward."

"What?" she replied impatiently.

"Divide and conquer is not uniquely Terran!"

* * * *

After she left, Barden wondered whether his final shot had hit anything. He returned to work and forgot about it, sensibly admitting that if it did he would not be bothered and if it did not he wouldn't stop anyway, and so he might as well get to work. He rather hoped to avoid the possible delay that would follow official action.

Dr. Edith Ward answered him within twenty-four hours. Her word was accepted as valid in many places: it had been the final authority on such matters for some time. Up to now there had never been any defense. Plus the fact that his side of the argument had never been voiced.

Barden didn't scourge the court for their decision. With only one accredited side of the evidence in, they could not take action. So Barden shrugged, grinned to himself, and spent several days in intense study, laying out the program that was to continue in his absence. Then he took the flier for the Terran capital.

It was not a court hearing. It was more of a high-powered debate before a group of qualified judges and investigators. Barden looked into the background of his judges, and was glad that the old system of appointment to investigating committees had been stopped. Though these men were not qualified physicists, they were not the old-line politicians, who took an arbitrary stand because they thought that waving a banner with a certain device would sound good to their constituents. There would be little personal opinion or personal ambition in this hearing, and not one of the judges would sacrifice either contestant on the altar of publicity.

By unspoken agreement, neither he nor Edith Ward mentioned the source of their information. This, Barden admitted, was hard on the female physicist's argument, for she could claim only mathematical analysis, and he could claim experimental evidence.

They heard her side, and then asked for his. He gave his arguments simply, and answered every point she brought up. There was rebuttal and rejoinder, and finally open discussion.

“I claim that this man is not a qualified physicist,” she stated firmly. “As such, he has not the experience necessary to judge the validity of my argument.”

“I admit that I hold no degrees,” said Barden. “Neither did Thomas Edison. Is Miss Ward convinced that no man without a string of college degrees is qualified to do anything but dig ditches?”

That hurt, for the investigators were not blessed with doctor’s degrees in philosophy; the scattering of LLDs were about half honorary degrees, and their owners, though gratified for the honor, knew how they were earned.

“Of course not,” snapped Miss Ward. “I merely state—”

“If Miss Ward is so firm in her belief, why doesn’t she bring forth some experimental evidence. She has the entire holdings of the Solar Space Laboratory at her disposal. If this is as important as she claims, then the financial argument may be dispensed with. For no amount of money is capable of paying for total destruction of the solar system.”

“I need no experiments,” she snapped.

“Or is Miss Ward trying to tell us that any line of research that she does not sponsor is not worth bothering with? Or is she trying to stop me so that she can take it up? Or has she started— late—and wants me stopped before I get to the answer. That would make the famous Solar Space Laboratory a weapon.”

“Maybe there is none.”

“Then,” said Barden, “why knock out a solar system that is so far away that nothing it does can have any effect upon you?”

“A very valid point,” said Edith Ward. Her eyes opened wide and her jaw fell slack. “Goodness,” she breathed.

“Are we?” he asked hollowly. His expression was one of wonder and amazement.

“Well, if we win, and it works, they’ve hazarded nothing and still have their science. If we lose, they will not miss us in the first place and also they’ll quickly abandon that point.”

“Guinea pigs,” snorted Edith. She stood up and put one slim hand in his. She gave it a hearty shake and a firm grasp. “I’m in—from right now to the point where the whole cosmos goes up in a cloud of nuclear particles! I’ll be at your place in the morning, with my case packed for a six months’ trip. Now I’m getting a whole case of feminine curiosity!”

“Yes?” he said cheerfully. “What this time?”

“Well, if your informant was tossing us an experiment, hoping to get an answer, then why did mine warn me? They’ll never see a spaceship burst at a distance of a half dozen light-years. They might never really know.”

“We’ll find out,” he said firmly. “There is something about both sides that I do not like!”

* * * *

True to her word, Edith Ward turned up at the first glimmer of daylight with her case of personal belongings. “Where’ll I have it put?” she asked.

“Ship Two, Stateroom Three,” he said. “I have two crates fixed up, so that if you’re right we can still get home without taking to the lifecraft.”

One hour later, the two ships lifted on their ordinary space drives, and sped with constant acceleration directly away from the sun. At three times gravity they went, and as the seconds and the minutes and the hours passed, their velocity mounted upward. In both ships, the men worked quietly on their instruments, loafed noisily, and generally killed time. Everything had been triply checked by the time that turnover came, six days after the start. Then, for six more days, the ships decelerated at three gravities while the sun dwindled in size. Between Tom Barden and Edith Ward there was much talk, but no solution to the problem. They covered nearly all aspects of the possibilities and came up with the same result: insufficient evidence to support any postulate.

About the only thing that came to complete agreement was the statement that there was more to this than was clear, and it was suspicious.

The feud that had existed faded away. It may have been the common interest, or if you will, the common menace. For though no true menace had shown, it was a common bond between Barden and Ward against a question that annoyed them simultaneously. It may have been simply the fact that man and woman find it hard to continue a dislike when they have

something in common. Nature seems to have made it so. It may have been the thrill of adventure, prosaic as it was to be racing through unchangeable space for hour upon hour and day upon day with nothing but the sheerest of boredom outside of the ship. Perhaps it might have been that the sight out of any window was exactly the same today as it was yesterday and would be tomorrow or a hundred years from now—or even a thousand, for though the stars do move in their separate paths, the constellations are not materially different. The utter constancy of the sky without may have turned them inward to seek the changing play of personality.

Regardless of the reason, by the time they reached that unmarked spot outside the orbit of Pluto where the ships became close to motionless with respect to Sol—there was no way of telling true zero-relative motion, and true zero was not important anyway—they were friends.

The ships were rather closer together than they'd anticipated, and it took only a couple of hours of juggling to bring them together. Then the skeleton crew of the one was transferred to the other ship. It drew away—and away and away.

"We've got more radio equipment aboard these crates than the Interplanetary Network owns," grinned Barden. "Everything on the darned crate is controlled, and every meter, instrument, and dingbat aboard her will ship the answer back here. There must be a million radio-controlled synchros aboard these ships, and cameras on both to read every factor."

"That's fine," answered Edith with a smile. "What happens if it works like a charm and takes off at superspeed? How do your radio-controlled gadgets work then?"

"We'd lose the ship, of course, if we didn't have a time clock on the drive. If all goes well, the first drive will run for exactly ten seconds. Then we'll have about a ten-day flight to find it again, because it will be a long way from here—straight out!" He smiled. "Of course, if we want to take a small chance, we could turn it on its own primary drive and superspeed it back if all goes well. But the radio controls will be as sluggish as the devil, because there should be about a three- or four-hour transmission delay."

* * * *

The other ship was a minute speck in the distance. Then a ship alarm rang, and the entire crew came to the alert. Barden said, "This is it!" in a strained voice, and he pulled the big switch.

Along the wall was the bank upon bank of synchrometers, reading every possible factor in the controlled ship. Before the panel were trained technicians, each with a desk full of controls. Behind them were the directors, with the master controls, and behind them stood Barden and Edith Ward. From holes above peeked the lenses of cameras, recording the motions of every technician, and, behind the entire group, more cameras pointed at the vast master panel. The recorders took down every sound, and the entire proceeding was synchronized by crystal-controlled clocks running from a primary standard of frequency.

At the starting impulse, the warm-up time pilot lit, and the relays clicked as one, like a single, sharp chord of music. When the warm-up period ended, the pilot changed from red to green and another bank of relays crashed home with a flowing roar, each tiny click adding to the thunder of thousands of others like it.

“That’s the end of the rattle,” observed Barden. “From here on in we’re running on multicircuit thyratrons.”

The meter panel flashed along its entire length as the myriad of ready lights went on. The automatic starter began its cycle, and the synchrometers on the vast panel began to indicate. Up climbed the power, storing itself in the vast reservoir bit by bit, like the slow, inexorable winding of a mighty clock spring. Up it went, and the meters moved just above the limit of perception, mounting and passing toward the red mark that indicated the critical point.

As slow as their climb was, each meter hit the red mark at the same instant.

There was a murmur of low voices as each technician gave his notes to the recorders. No scribbling here; the voice itself, with its inflection, its ejaculation, and its personal opinion under stress, would be set down.

Then the master switch went home with a tiny flare of ionized gases—

And, silently, every panel went dead.

* * * *

“Oh!” said Edith Ward in a solemn tone.

“Not yet,” Barden objected. “This may be success.”

“But—?”

“How do you hope to control a radio-controlled drone that is traveling faster than the velocity of propagation.”

“But how will you ever know?”

“When we—”

He was interrupted by the chatter of the radiation counter. Light splashed in through the tiny ports in a brilliant flare.

“Well, we won’t,” said Barden helplessly.

“Won’t what?”

“Ever catch up with it! Not where it’s gone!”

“So—?”

“So we’ve solved that problem,” he said bitterly. “Your informant was right. From what the counter says, that was a vicious number. Well, I guess I am licked, finally. I admit it.”

“Somehow,” said Edith solemnly, “I know I should feel elated. But I am not. Fact of the matter is, I am ashamed that there is a portion of my brain that tells me that I am proven correct. I... fervently wish it were not so.”

“Thanks,” he said. “I wish but one thing.”

“What?”

“I’d have preferred to have been aboard that crate!”

“Tom!” she said plaintively. “Not—oblivion.”

“No,” he said with a wistful smile. “At superspeed, my recording instruments could record nothing. Perhaps if I’d been aboard I could have found out what really happened. There is no way.”

“But what can we do?”

“Build another one, and spend my time trying to find out how to get a recording from a body that isn’t really existent in this space at all.”

“That sounds impossible.”

“Then there is but one answer,” he said, “and that is to go out with it, and hope that by some machination I can control the reaction before it gets beyond stopping.”

“Tom,” she said quietly, “you are still convinced that such a thing is possible?”

“I am,” he said. And then he stopped as his face filled with wonder.

“What?” she asked, seeing the change.

“Look,” he said, his voice rising in excitement. “We caught radiation. Right?”

“Right.”

“That means that the ship was not exceeding the velocity of light when it went up!”

“Yes, but—?”

“Then on the instantaneous recorders there must be a complete record of what every instrument *should have been reading* but did not due to the mechanical inertia of these meters! Right?”

“But suppose—”

“Look, Edith. The theory of the drive is based upon the development of a monopolar magnetic field that encloses space in upon itself like a blister, twisted off from the skin of a toy balloon. Now that field would collapse if the fission started, because the fission is initiated, as you claim, by magnetostrictive alignment of the planetary orbits of the field electrons in the atoms. Obviously, the magnetostrictive effect is more pronounced near the center of the monopolar generator. Ergo, that would go first, dropping the speed of the ship to below the velocity of light by a considerable amount. Then, as the fission continued, spreading outward, the various instruments would go blooey— but not until they’d had... did you say thirteen microseconds after initiation the major fission took place?”

“Yes.”

“Give it twelve microseconds to drop the ship below the speed of light, and I have still one full microsecond for recordings!”

* * * *

Edith Ward looked up in admiration. “And you’ll bet your life on what your instruments can see in one millionth of a second?”

“Shucks,” he grinned. “Way, way back they used microsecond pulses to range aircraft, and they got to the point where a microsecond of time could be accurately split into several million parts of its own. Besides, I made those instruments!”

“Q.E.D.,” said Edith Ward quietly. “But how are you going to develop a monopolar magnetic field without the magnetostrictive effect? The prime consideration is not the field, but the fact that aligning the planetary orbits means that two things tend to occupy the same place at the same time. That isn’t—they tell me—possible.”

“Too bad the reverse isn’t true,” he said.

“You mean the chance of something occupying two places at the same time?”

“Uh-huh.”

“What then?”

“Then we could develop two monopolar fields of opposing polarities to inclose the twin-ship proposition. Then the atomic orbits would not be affected, since they would receive the bipolar urge.”

“Couldn’t you change from one to the other very swiftly?”

“Not without passing through zero on the way. Every time we passed through zero we’d end up at sub-speed. The ship would really jackrabbit.”

“Oh.”

“But,” he said thoughtfully, “what happens if the monopolar field is generated upon a true square wave?”

“A true square wave is impractical.”

“You mean because at the moment of transition, the wave front must assume, simultaneously, all values between zero and maximum?”

“Yes,” she said, “and it is impossible to have any item operating under two values.”

“That is an existent item,” said Barden with a smile. “Bringing back H. G. Wells’ famous point of whether an instantaneous cube could exist.”

“This I do not follow.”

“Look, Edith,” said Tom patiently. “Any true square wave must have a wave front in which the rise is instantaneous, and assuming all values between zero and maximum for the duration of an instant. An instant is the true zero-time, with a time-quantum of nothing—the indivisible line that divides two adjoining events. Just as a true line has no thickness.

“Now,” he went on, “generating the monopolar field on a true square wave would flop us from one field to the other in true no-time. At that instant, we would be existing in all values from maximum negative to maximum positive, at the same time as zero—*but not truly assigned a real value.* Therefore we should not stop.

“However,” he went on, “that is an impossibility because the true instant of no duration is impossible to achieve with any mechanism, electrical or otherwise. However, the fields set up to make possible this square wave do permit the full realization of the problem. For a practical duration, however small, the value of the wave does actually assume all values from maximum negative to maximum positive!”

She looked at him with puzzlement. “I thought they taught you only this one science,” she said.

“That would have been useless,” he grinned. “As useless as trying to teach a Hottentot the full science of electronics without giving him the rest of physics as a basis. No, little lady, I got the full curriculum, including a full training in how to think logically! How else?”

“You win,” she said solemnly. “Fudge up your true square wave, and I’ll buy a ticket back home in your crate!”

“Thanks, Edith,” he said. “That’s a high compliment. But there’s more of us than we-all. I’ll have to take a vote.”

There was a roar at Barden's explanation. And his head technician stood up, waving for silence. "There's enough lifecraft aboard," he shouted over the noise. "Anybody who wants to get out can take 'em. They can make Terra from here in a couple of months in a lifecraft if they want to."

That got a roar of approval.

"Lucky I had two ships all fitted out," said Tom. "Also, with all this spare junk for radio-controlling the other crate we've got a shipload of spare parts. Probably take about a week flat to tinker it together, but it is far better to do it out here than to go all the way home to Terra—that'd take about four weeks."

"I wonder why they didn't think of that square-wave idea," said Edith.

"Lord only knows."

"That's what bothers me," she said.

"Why?"

"Because we are playing with the other man's cards, remember. We're not leading authorities in this art. You got both the square-wave generator and the monopolar field out of them. Now why hadn't they tried it before?"

"On the theory that no beginner ever has a valid idea? No soap. Maybe they've been too close to the woods to see anything but them trees. Of course, there's another little angle we've not considered."

"Go on. First it was a political difference between factions for and against subjugation. Then I came in and threw in my two cents, which sort of hardened the argument a bit. We didn't know whether my stuff was shoved in to stop production or to save Sol. We know now that your informant was telling the truth, but not the whole truth. We know that mine was honest, but not why he was. Then we came to the possibility that someone somewhere tossed us a fish because they were afraid to try it. Why the stopper on that?"

"Possibly they want us really to try it out, and not total destruction."

"But—??"

"Look, Edith. Supposing you wanted to have something developed

for you by a consulting laboratory. You've done that yourself at Solar Labs. Wouldn't you give them whatever information you had available?"

She nodded. "Nice explanation," she said solemnly. "Excepting that if I were doing it, I'd not call one man and start him experimenting on one pretext, and then call another member of the laboratory and tell him that the information would lead to disaster."

"In other words, the big problem is motive."

"Precisely. And that's what we're up against. Try to figure out the hidden motives of extra-solar cultures."

"You believe there are two?"

Tom Barden nodded. "Uh-huh," he said. "And all the talking we can do from now until we find out won't help, because we cannot interpret the thoughts of an alien culture in our own terms and hope to come out right!"

* * * *

And that, of course, was that. It was definitely true. Reviewing all the evidence during the next ten days, they came up with a startlingly minute amount of fact. Barden had been given a scientific field because of a political argument; Edith Ward had been warned that the information was incomplete and would lead to disaster.

Build upon those slender bricks, and they tumble all too quickly. Barden's story could be construed as an attempt to get consulting service on a dangerous project without danger to the alien race. Ward's informant might have been an attempt to give Sol a good chance to solve it in safety, but in solution there would be no proof—or even in failure. For there was no way of telling proof from failure at many light-years of distance unless the failure bloomed the entire system into a nova.

And regardless of any theoretical argument, it was still a technical impossibility to construct any spaceship capable of traversing light-years without some means of super speed. Not without a suitable crew to do a job when it arrived.

Then, to reverse the argument, supposing that Barden's tale was correct. The opposing faction might hope to forestall any work by issuing the warning.

But if Barden's tale were correct, why did the so-called altruists offer him a science that was dangerous to pursue?

Unless, perhaps, the political argument was conquest versus dominance. Both factions wanted conquest and dominance. One demanded the elimination of all races that might offer trouble. The other faction might argue that a completely dead enemy offers no real reward for conquest—for of what use is it to become king when the throne is safe only when all subjects are dead?

Yes, there's paranoia. The paranoid will either become king of all or king of none—or none will remain to be king, including himself. That theory is quite hard on rational people.

So went the arguments, and when the ten days were completed, they were no closer to the truth than they had been before.

Not entirely true. For they hoped to drive—somewhere—at a velocity higher than the speed of light.

* * * *

With a firm hand, Tom Barden pressed the start button. The relays clicked and the pilot lights flared red, and then, after the warm-up period they turned green.

"This is it," he said, grasping the small lever that would start the automatic sequence.

Silence—almost silence came. From one corner came a small muttering and the click of beads. A throat was cleared unnecessarily, for it, like all others, was both dry and clear. A foot shuffled nervously—

"No!" shouted a voice.

Barden looked at Edith Ward. "Still—?" he said.

She nodded and put her hand over his on the lever. "Want me to prove it?" she said, pushing it home.

There was a tinnily musical note that crept up the scale from somewhere in the sub-audible, up through the audible scale, and into the shrilling tones that hurt the ear. It was hard to really tell when it passed above the audible, for the imagination followed it for seconds after the ear

ceased to function.

There was a creak that rang throughout the ship. A tiny cricket-voice that came once and changed nothing but to increase the feel of tenseness.

Then—nothing pertinent.

Except—

“Great Scott! Look at Sol!”

The already-tiny sun was dwindling visibly; it took less than three or four seconds for Sol’s disk to diminish from visible to complete ambiguity against the curtain of the stars.

“We’re in!” exploded Barden.

“Hey!” screamed a watcher at the side port. A flare whisked by, illuminating the scene like a photoflash bulb. A second sun passed at planetary distance. It joined the starry background behind.

Barden shut off the drive and the tense feeling stopped.

“Well, we’re in!” he said in elation. “We’re in!”

The scanning room went wild. They gave voice to their feelings in a yell of sheer exuberance, and then started pounding one another on the back. Barden chinned himself on a cross-brace and then grabbed Edith Ward about the waist and danced her in a whirling step across the floor. The crew caught up with them, separating them. They piled into Barden, ruffling his hair and rough-housing him until he went off his feet, after which someone produced a blanket and tossed him until the blanket ripped across. Then they carried him to the desk and set him unceremoniously across it, face down, and left him there to catch his breath.

“Like New Year’s Eve,” he grunted.

The crowd opened to let Edith through. She came toward the desk as Tom unraveled himself and sat on the top. “A fine bunch of wolves,” she chuckled gleefully. “Tom, have you ever been kissed by twenty-two men?”

“Wouldn’t care for it,” he said. “They’re not my type. And besides, it’s twenty-three.” He made the correction himself.

Then things calmed down. They were—as one man put it—"a long way from home!"

"But what I want to know is why we can see the sun when we're going away from it at several times the velocity of light?" demanded Tom.

"Well, your own problem answers your own question," said Edith, patting her hair back into place. "Remember the square wave problem? Well, in the transition period, you are simultaneously obtaining all degrees from maximum negative to maximum positive, including zero. Zero is where the ship, being out of space-warp, must drop below the speed of light. The sun receding is due to the persistence of vision that lasts between transition periods. Lord only knows how far we travel between each transition."

"We can find out," said Tom. "I'd hoped to develop a velocimeter by using the doppler effect, but that's not possible, I guess. I'd suggest that we find out where we are, and then head back for Sol. Might as well get for home and start the real thing cooking."

"What was that sun we passed?"

"I'll not tell you now," said Tom. "One of the nearby stars, but I don't know which. We might stop, though, and take a closer look at an alien star from close up."

* * * *

The ship was turned and the drive was applied until the star expanded into a true sun. At about a billion miles, they stopped to inspect it sketchily. They were not equipped to make any careful observations of stellar data.

They watched it, like sightseers viewing Niagara Falls, for an hour. There was really nothing to see that could not be taken in at a glance, but the idea of being near to one of the extrasolar systems was gratifying in itself.

Then, as the realization that they could watch that silently blazing star for years without producing anything of interest or value, Barden called a halt to the self-hypnosis, and they resumed their stations. The drive was applied again, and they passed the star, picking up speed as they went.

Somewhere ahead was Sol, lost in the starry curtain of the sky. But they were not lost, for they were headed in roughly the right direction, and

eventually Sol would emerge and stand out before them in plenty of time to correct their course.

The entire group, their period of strain over, stood idly looking out the ports. There was nothing to see save that star, passing into the background. But their work was finished, and they were loafing. It looked like an excellent time to just stand and do nothing. Barden was inspecting the superdrive unit with a paternal smile, noting with some gratification that it was even smaller than the normal driving gear of the ship. Dr. Edith Ward had gone to her room to repair the damage done during the celebration. Jerry Brandt, the manual pilot, was sitting idly, playing a senseless game with the myriad of switches on his disconnected board as the autopilot controlled the ship.

Two of the crew were matching pennies in front of the meter panel, and three more were watching a chess game between two of the others, who were using various-shaped radio tubes as men. All was set for a quiet journey home.

Their first alien sun dwindled and was soon lost. Before them, the stars were immobile until one at near center swelled visibly. Jerry Brandt idly kicked his switches into neutral and switched over to manual drive long enough to correct the course; the swelling star and the rest of the sky swiveled about the ship until Sol was on the crosshairs.

This time there were no days of flight from Terra to beyond-Pluto. Their ship plunged sunward at a dangerous pace, dropping below the speed of light at the tick of an instant at about the orbit of Jupiter. At under the speed of light, but far above the normal speeds of spacecraft, the ship headed Terraward, and slowed as it went. The superdrive was turned off a few thousand miles above Terra, and the rest of the voyage to the surface of the planet took actually longer than the quick run across interstellar space.

They landed in the huge construction yard at the Barden Laboratories.

A success—

“Yeah,” said Tom Barden dryly. “A success. But who did what to whom and why?”

Edith Ward nodded in puzzlement. “You don’t suppose it was just some nearby star wanting to observe a nova at close proximity?”

“Seems to me that wouldn’t tell ‘em anything,” said Barden. “That would be a completely artificial nova, and lacking of true data. Of course, I’m no astronomer and don’t know beans about the subject at all. I admit it. I’d be lost trying to find my way home from out there if I couldn’t retrace my steps. I wouldn’t recognize Sol from Sirius if I were on Arcturus, and I’d not know how to go about it.”

“Spectral lines, and stellar data—” said Edith.

“I have a hunch that whoever—in fact I’m certain—gave me this information was uncertain as to whether I was in the next stellar system or halfway across the universe.”

“That would depend upon the range of whatever gadget they used to implant the information—and whether it was beamed. Also, Tom, there’s another interesting item. You say there was a mental conversation in your case. That means that the velocity of propagation of that medium is instantaneous! Either that, or he was right here on Terra.”

“Got me. But if he were right here, why didn’t he meet me in person, or make a future date?”

“I pass,” said Edith. “I have a fair working knowledge of astrogation. I wonder if it is complete enough for my fellow to have positioned us. On the other hand, mine came strictly as information, without chitchat. Like someone handing me a telegram full of data.”

Barden considered the problem a moment as the girl went on.

“But my knowledge of astrogation is merely the angular constants of the marker stars and how to recognize them from their constellation positions. He might be able to set up a model of this hunk of sky and reach the right answer—only if he sought the information, however. I did not give it, and he seemed uninterested—as I say, it was like getting a phonograph record or a radiogram.”

They entered Barden’s office and as they did, Tim Evans came running in. Barden nodded and said: “Miss Ward, this is Tim Evans, my head mathematical physicist. Tim, this is Dr. Ward.”

They acknowledged the introduction, but Tim was excited. “Look, Tom, did it work?”

“We had trouble on Ship One, but we fudged Two up and made it

sing like an angel.” Barden explained sketchily.

“Oh,” said Evans, his face falling slightly.

“Why?”

“Because I’ve been thinking along another line and I’ve come up with another kind of superdrive. If yours didn’t work, this one is certain.”

“Yes? Go on.”

“No need to,” said Evans. “Yours is far more efficient and less bulky. Mine would get you there, but it would take up a lot of extra space. Besides, it doesn’t offer the chance to see where you’re going directly, but only through a new type of celestial globe. Furthermore, it wouldn’t move as fast. So forget it.”

“New type of celestial globe?” asked Barden. “We could use it, maybe. We can see out all right, but that’s due to the intermittence. The present celestial globe system is an adaptation of the pulse-ranging transmission-time presentation, you know. When you’re running above light the globe is useless.”

“But look, Tom,” objected Edith. “You won’t need one at supers peed. You’ll not be maneuvering, and if you hit something a few million miles ahead in the globe, you’re past it before anything could work anyway.”

“Admitted,” he said. “But I’d like to have one, anyway. Look, Evans, how does this thing work?”

“On a magneto-gravitic principle. Gravity, I am beginning to understand, is not a matter of wave propagation at all. It is a factor of matter—and it is either there or it isn’t.”

“I wouldn’t know.”

“Well, that’s the theory. So we utilize an artificial manifestation of gravity, beamed. It also seems that gravitational effects are mutual. In other words, the attraction between Terra and Sol is the combination of mutual attractions. So our beam, increasing the attraction between the object and the beam, also causes the increase of the attraction between the beam and the object. For beam read transmitter; I always think of the radiating element as being the beam instead of what I should. Anyway, when the attraction is increased, it affects a detector in the radiating elements. That

gives you your indication."

"How about ranging?"

"Still a matter of the inverse-square of the distance. We know accurately the attraction-factor of our beam. Whatever reflects will have distance-diminishment which we can measure and use."

"But it is also proportional to the mass, isn't it?" asked Barden.

"It'll take a nice bunch of circuits," grinned Evans, "but we can check the mass with another beam's attraction to it and differentiate. An integrating system will solve for range on the basis of mass and distance. The celestial search and presentation systems will be the same."

"O.K.—how about communications?"

"Sure," said Evans.

"You rig 'em up," said Barden. "And Tim, tell Eddie to refurbish the ship. We're going out again. And I want three or four of the original space drives put aboard as working spares."

"Working spares?" asked Evans.

"Yeah, mount 'em on girder frameworks complete with atomic units. I'm going to prove the next point."

"What next point?" asked Dr. Edith Ward.

"I want to find out if your informant was telling the truth," said Tom Barden. "Interested?"

* * * *

Edith shuddered a little. "That's a big responsibility," she said. "You intend to destroy a whole stellar system?"

"I don't know. I'm going to see whether that stuff would actually start an overall sustaining fission reaction in a planet after the minor fission got underway. If it does, then it is no worse for me to blow up a dead system than it would be for my little informant getting us to blow up ours."

"You sound rather positive about it."

“One or the other,” said Barden. “I’m bothered. No matter how you look at it, we... or I, was like a small child given matches to play with in a nitrocellulose storehouse. Unless you’d come up with yours, I’d have most certainly blown us sky high.”

“Right. I think we owe my friends a debt of gratitude.”

“I’ll agree to that. But for this test, we’ll ramble until we find a relatively unimportant star with only one or two planets, devoid of life. Then we’ll try it.”

“But even with dead system, you’re taking a lot upon yourself.”

“How?”

“There will, from that time on, be a monument to the memory of Thomas Barden. You’ll be the object of argument and of both admiration and hatred. Flag-wavers will either point with pride or view with alarm, depending upon their politics. Why not wait until the thing is discussed?”

“Forever? No, Edith. None of us can afford it. We must know. If this works, Sol has a rather dangerous weapon against any possible conquesting races in the galaxy. Regardless of what has gone before, Sol is in a position to go out and make her mark upon the galaxy. It is best to go prepared, and if we fear nothing, we neither need fear subjugation.”

“But destroying a stellar system—”

“Who’ll miss it?” he asked.

She looked blank. “I don’t know,” she said. “It just seems so big. It doesn’t seem right that one man should be able to go out and destroy a stellar system. One that has been stable for millions upon millions of years. Superstition, perhaps,” she said thoughtfully. “I’m not a religious woman, Tom. I am not sacrilegious, either. Somehow, somewhere, there must be a God—”

“Who made the universe. With a density of ten to the minus twenty-eighth power and an average temperature of matter about twenty million degrees? For the benefit of Terrans. Well if so, Edith, He is willing to see one of His experiments used to further mankind in his struggle. *Ad astra per aspera,* my dear!”

Edith agreed solemnly, but was obviously unconvinced.

“Look,” he hastened to add, “if all this was put here for the benefit of Terrans, we’re expected to use it. If we are incidental in some grand plan encompassing a billion suns in a thousand galaxies, loss of one sun won’t matter.”

“I suppose that’s logic,” she said. “I’d prefer not to talk about it too much. I know it should be done, but it still seems all wrong, somehow.”

“We’ve got to know. Remember, there’s a lot of truth in the whole thing,” he said thoughtfully. “And also a lot of untruth. They did tell me the way to interstellar travel—in a slightly staunchwise fashion. They told you about the disintegration-process. Now, darn it, Edith, did they scare us away from planetary tries because they knew it would damage the system, or for another reason? How do we know the thing would ruin a planet and ultimately the system? Answer, we do not.”

She nodded glumly. “I suppose that it is a step toward the final solution.”

“Right, and as soon as we can get a nice system, we’ll try it!”

* * * *

“This is Procyon,” said Tom Barden. “Or so they tell me. I wouldn’t know.”

The star was a small disk almost dead ahead; its light shone down through the fore dome of the ship augmenting the lights in the observation room.

“Sentiment again,” she said. “I’d prefer a system more distant.”

“If this has the right kind of planets, Procyon it is,” said Barden flatly. “If it has planets unsuited for life, what possible good can it do Terra? Plus the fact that the instability that follows the nova for a few years will act as a nice signpost toward Terra from all parts of the galaxy. Remember, men will really be spreading out with the new drive.”

“Again you’re right. But have you no sentiment?”

He looked at her. “Not when it interferes with practicality—”

They were coasting along at half the speed of light, under the

superdrive. On all sides were running cameras. One coast across the system with the moving picture cameras covering the sky would bring any planets into ken; the parallax of planetary bodies would show against the fairly constant sky. There was also visual observation for interest's sake.

At the far side, the ship came to a stop with respect to Procyon, and while the films were developing, Jerry Brandt swapped ends and ran the ship nearer the center of the system. Procyon, from one side port, looked about as large as Sol from Terra, and it seemed about as bright and warm.

It was here that they met the alien ship. It came from nowhere, and passed them slantwise at a terrific velocity. As it passed, a stabbing beam darted once, and the beam-end burst into a coruscation of sheer energy.

"That," blubbered Barden, "was close!"

Jerry Brandt swore thoroughly, and whipped the ship around slightly, cramming on the superdrive but keeping the drivers below the speed of light. He set his switches carefully, and seconds later the alien ship appeared for one brief instant and then was gone. While it was there, eye-visible in the sky, one of the ship's own cutting planes sheared out and sliced the driving tubes from the bottom of the ship.

Then it was gone, and Brandt fought the switches, stopping the ship.

"What—was that?"

'We've got a nice way of retaliating," said Barden harshly. "We use the intermittent generator of the superdrive but we stay below the velocity of light. Jerry has calibrated the intermittence and the rep-rate to a nice precision. We appear in true space, slash out, and disappear again to reappear God knows how many miles farther on. Now we'll go back and see whether that bird wants more." He spoke to Jerry. "Take care!"

"Easy she goes," replied Brandt. "Did you see that joker? He tried to ruin us!"

* * * *

They came up as the inert alien came into view. It stabbed again with that beam, but missed. Jerry Brandt swore again and cut the ship from end to end with his cutting plane. This time there was no response save a swirl of smoke from the cleft sides of the ship.

“We’ve used these to cut asteroids into stove lengths,” he told Barden sharply. “I wonder how many of them have been used likewise on some hapless enemy.”

“I don’t have any way of knowing,” said Barden. “And I don’t care whether it is a proper weapon to use or not. It worked.”

“What are you going to do?” asked Dr. Ward.

He smiled at her. “He didn’t like us—apparently for no other reason than we were alien. If he’d come in peaceable, we’d have made talky-talk. As it is, he fired first, but not too well. Now we’ll just grab his ship and see what he’s got, who he is, where he’s from—and possibly why.”

It was a small ship outside, in space. But getting it into the vast cargo hold of Barden’s ship required some more trimming. The alien ship finally lay in eight sections, stacked. The cargo hold was now jammed with alien ship, and much of the spare equipment and supplies were jettisoned.

Then they went in warily to examine the alien. They found the alien crew—four of them. They were spacesuited, but unconscious.

“Hope they breathe air at twenty percent oxygen,” growled Barden. They opened the suits, and laid the unconscious aliens on tables in one of the operations rooms.

They were squat and wide, almost humanoid save for large eyeballs under the closed double lids. Their noses were almost nonexistent, and each hand splayed wide with seven stubby fingers. These hands were symmetrical, but despite a thumb on either side, the Terrans doubted that they were more dextrous than Terrans, because of their shorter fingers.

Their shoulders were very wide, but also quite thin, indicating a long, unfavorable leverage with less muscle.

“Ugly-looking—” started Jerry Brandt, who shut himself off as he remembered Edith Ward.

She looked up at him and flushed. “They are,” she said with a slight smile. Brandt blushed with embarrassment and spluttered incoherently for a moment. The pilot might have spluttered for some time had not the foremost alien stirred, causing a diversion.

They crowded him as he awoke and looked about him. His

expression was undecipherable, though there was quite a change in facial composure as he saw the kind of white-faced animals that surrounded him. He looked, and then he clutched rapidly at a device on his belt. Barden swung a fist and caught the creature on the forearm, causing him to drop the half-drawn weapon. Brandt stooped over and picked it up, and the rest of the crew proceeded to disarm the other three.

Edith found a length of wire and made a loop of it. She held it in front of the alien.

He relaxed, splaying his hands and holding them wide from his body. Her action had been understood, and the creature did not want his hands tied.

“Jerry,” said Barden. “Set the controls for superspeed towards anywhere in the universe, and get us away from here.”

“Solward?”

“No. He should get as little information as possible.”

Jerry left, and the ship soon turned slightly and started off. Barden waved the creature to the port and pointed out Procyon, which was diminishing swiftly. The alien grew excited, and made wondering motions.

“That... thing... knows what the score is, partly,” observed Edith.

“That... thing... had better behave,” said Barden flatly. “And while we’re wondering about him, I hate to think of him being called a Procyonian.”

“Call ‘em *Pokeys,”* said Tim Evans.

“O.K. Now let’s show him his ship.”

The alien’s excitement changed to dismay as he viewed the wreckage. He looked at it, and then as if wiping it off as finished, he turned away.

There was but one cargo lock in Barden’s ship. And, though the alien craft had been trimmed, and considerable of it trimmed away and left, it was still packed in with most of the remaining spares. These included the four superdrive motors, mounted on their girders with the atomic units. The alien saw these, and went over to inspect them, and Barden let him go.

What possibly could have been familiar they did not know. The chances of an alien gasoline engine being instantly recognizable as such by a Terran is problematical. A simple electric motor might be—especially if connected to a storage battery, or even by a wire cable to a wall outlet. Doubtless, the electron tube would be recognized by a spider-man from the other end of the galaxy, for the handling of electrons must be similar no matter where they are used. There will be cathodes and grids and anodes and connecting prongs, wires, or terminals.

The unprotected superdrive motor was not encased. It had been a job intended for test-stand operation and, therefore, it could be inspected fairly well. Something about it was familiar, and one spot of familiarity was sufficient for the alien to reconstruct the rest.

He nearly exploded with frantic gestures. He ran to Barden— his run was a swift waddle, due to the wide leg-base—and clutched Tom's arm. He pointed to the cut-apart spaceship and indicated that he wanted to go up into that pile to find something. Barden shrugged and nodded, and then followed the alien.

* * * *

It was difficult for Barden, for the alien was sure-footed in his climb up the jagged edges to one section near the middle of the pile. He disappeared inside and found a piece of equipment, which he brought out. He set this upon the floor and returned with other equipment, which he added to the original piece. Then taking the whole bunch in his arms, he led them up to the operations room.

Here he put it on a table. Then he opened the main piece and drew out a two-pronged plug which he waved in Barden's face, made plugging gestures into the blank wall, and then made searching motions.

Barden pointed to the nearest convenience outlet, and the creature waddled to it with the rest of his equipment.

He probed into the openings with test-leads and read the results on meters of his own. He showed Barden exactly what the meters should read.

Barden nodded and they set to work matching their line-current to the alien's specifications. It turned out to be one hundred ninety-three volts at seventy cycles. Meanwhile, one of Barden's men replaced the alien's plug with a Terran type, and they inserted it gingerly. The alien put a temple-set

over his head, and handed one to Barden.

“This,” came the thought, “is an instrument used to extract information from enemies. It will serve as a means of communication.’’

“Why did you fire on us?” thought Barden.

“You are alien. We are at war, in fact, have been at war with the devils from that star—” and here came a mixed-impression of a distorted constellation that was not familiar to Barden, who was not too familiar with astronomy, anyway, and so he passed it over. He stopped the alien momentarily, to send one of the men to tell Jerry Brandt to return to within a light-year or so of Procyon.

“But,” continued the alien, “you are not using—that?”

“Not exactly,” said Barden.

“No, for that means death.”

“We were going to try it out,” was Barden’s calm thought.

“On— NO!” came the terrified reply.

“Well,” returned Barden, “we’re never pleased with red-hots who shoot at us!”

“But an entire system?” came the pleading exclamation.

“Filled with people of the same ilk,” returned Barden unimpressed.

“But even warfare must not be annihilation,” objected the alien. “For of what value is a dead enemy?”

“They are no longer any bother,” Barden grunted. “We dislike being bothered, and our will happens to be that we want to go wherever we choose at any time we please. A favorable attitude upon the part of any other culture is one that permits us our will. A dead culture will never obstruct us, for one thing. It will never revert to its original attitude of belligerency, for the second thing. And for the third thing, alien, with the interstellar drive we have, we can find those cultures in the galaxy which see exactly as we do; therefore it is to our advantage to eliminate any malcontents right now.”

“But what do you intend to do?” demanded the creature.

“My system has been the tool of some other culture. The purpose is not clear, though the outcome might have been quite disastrous. I intend to find both that culture and their reasons and extract full payment!”

“But how—?”

Barden smiled in a hard manner. “I intend to plant one of these unprotected space motors on one of your planets,” he said. “That is for my own protection. Then we’ll collect one of the enemy, and do likewise with his system. Then you and he will have your little talk—and you’ll first call off this war, or you’ll both be enjoying novas in your own backyards. It’s about time that people learned how to get along with one another!”

“But I have little authority.”

“*I* have,” smiled Barden in a completely self-satisfied manner. “I have all the authority necessary to demand that your superiors and your scientists meet their contemporaries of your enemy—and peacefully.”

“What are you going to do with me?”

“Do you know both languages?”

“No,” answered the alien. “That’s why we use the mentaphone.”

“What do you know of the space motor?”

“Very little. It is, as you know, dangerous. We are forbidden to experiment on it.”

“You know it is dangerous?” asked Barden.

“We have excellent reason to believe so. Our studies have been purely theoretical. But tell me, how do you hope to accomplish this mission of yours?”

“One of you four will be permitted to land and carry our message. One of the enemy race will do likewise.”

The alien disagreed. “You can never land,” he said. “You cannot even approach.”

“No?” said Barden harshly. “Well, we’ll plant our motors first. And you’ll use whatever you have to communicate with them and you’ll tell ‘em all. Then, my squat friend, there had better be a ten-thousand-piece brass band playing the Solar Anthem as we land! *Or else!”*

* * * *

Tom Barden sat in an easy chair, relaxing. He was watching the others, who were glaring at one another and trying to conceal their thoughts. Lanthar—he of Procyon—and Grenis of Sirius both knew that the Terran who sat there so easily was not fooling.

“Now,” said Barden, “what’s the story? I’ve told you what happened, and why I’m angry. This warfare must stop, and Sol, too, must be protected. Only by complete agreement can all three of us occupy the sky in safety. Otherwise, there may be but two of us—and perhaps only one. You—Lanthar—what do you know of the space motor?”

“I’ll tell,” said the one from Procyon. “I’ve been in disagreement with the plan, but outvoted. We discovered it and its danger. We’d have worked upon it, but we could not permit it to be used in space because of attack. We could not try it on a planet, because of the danger. Remember, we were at war, and could afford to take no chances. There was a large faction which outvoted me—and then they permitted its theft from a false laboratory. It is amusing, Terran, to go into the full details of how this laboratory was set up, run, and finally thefted. We actually treated it as though it held one of our high secrets, but we were lax only in the total number of guards we used. They—succeeded.

“The purpose of this was to permit them to try it out. That would mean their destruction. I’ve insisted that a dead enemy is of no value—”

“We follow your reasoning, all of us,” said Barden. “And go further. We state that an enemy is a total loss *per se,* and we avoid the expense. Now, Grenis, you stole the plans?”

“We did,” said the Sirian. “But there was something wrong. Not only did we steal the plans, but we inspected their plant. While they were setting up their laboratory they forgot to include some means of accepting and dissipating enough transmitted power to make the work look real. There was a quite large discrepancy between the power used and the power we calculated would be needed to carry on such a program. So we became suspicious—which started when we were able to penetrate the place in the first place.

“What we found was interesting,” said the Sirian. “But we were suspicious. We studied it carefully, and it seemed perfect. But, Terran, came again the suspicion. For if this were so perfect, why weren’t they using it?

“Because it might be a trap,” he went on. “And like he and his, we dared not establish a space laboratory because of the fear of attack. So we were completely stopped.”

Lanthar grunted. “So he and his bunch went to work on a method of contacting other people at a great distance,” he said. “It took them a long time, and they were without success at all until they succeeded in contacting you.”

“That is correct,” said Grenis, making an apology. “We have detectors capable of working on the gravitic effects. A nova would disrupt both the magnetic and the gravitic levels sufficiently to warn us immediately. And we knew that any race which was not suspicious of an enemy would try it—”

“I see,” said Barden angrily. “Then we have you to thank? And you,” he said to Lanthar, “knowing that this was done, tried to protect us?”

“Not basically,” apologized the man from Procyon. “You see, we did not know you—nor even where you were in the galaxy. You meant nothing to us at all then, except as a consulting service for our enemy—completely hidden and quite safe. We did not want you to go into nova because that would have warned them. We knew that after a period of time, with no sign of failure, they’d try it!”

“A fine pair of stinkers,” sneered Barden. “Well,” he said with a laugh, “Now you’ll co-operate with us all, or else! But Lanthar, how can you be certain that nova will occur?”

Lanthar of Procyon stood up and smiled tolerantly. “Me—?” he said. “I know only what I’ve been told about it. Strangely enough, it came to me in a dream, too!”

* * * *

Somewhere in the galaxy, two scientists consulted their time predictions. They agreed silently that sufficient time had been permitted, and that their detectors had shown no warping of the magneto-gravitic continuum.

Despite the questionable value of negative evidence, they felt safe.

“I doubt all new arts,” said one of them, thrusting the switch home, “especially when I know not the source.”