



Based on "Initial Contact" published in Analog May 6, 1969

Initial Contact

by

Perry A. Chapdelaine, Sr.

Michael O'Hara, tall like a tree and gnarled like an old oak, but still young, bent his head with deliberate timing and dignity toward his snapping breakfast food. With only one ear on his Sound-A-News, he scooped his spoon slowly forward in soup-eating half-cricle, then stopped it suddenly as the news caught his full attention.

"Repeat the last half minute," he spoke aloud.

With no perceptible pause, the Sound-A-News picked out Michael O'Hara's meaning, shuttled near-pure light frequencies back through crystal lattices then repeated its earlier news story: "Flash! Flash! Project Ozma X reports aliens to invade Earth for purpose of enslaving all humans.

"Early this morning Sound-A-News analysts, along with reports from very reliable and reputable sources, determined Eridanian motivation. It is nothing less than a complete take-over of Earth. According to this reliable source, the Eridanians who plan to visit our planet two years from now, also intend to capture and enslave humans for their own evil purposes."

Michael dropped his spoon and, with uncharacteristic speed and agility, bounded from his seat, "Damn! Damn!" he swore.

The Sound-A-News carefully ignored the spoken expletives and continued in its own inexorable manner: "News reports now coming from all over the planet indicate wide-spread concern on the part of every governmental agency. The United Nations President has called an extraordinary special cabinet meeting and all agencies associated with Project Ozma X are expected to remain at full alert, available for. . . ."

Michael dashed through his kitchen at full speed, stopping only long enough to grab his briefcase lying at the foot of his table; not pausing at all as he ordered, "Sound off!" to his Sound-A-News!

Unwilling to risk the state of his muscular control now reacting from adrenaline following the subjective impact of the recent news, he signaled to an air-cab, bounded in and, half-shouting, said, "Ozma Building 24 -- Step on it, please!"

The copter-cab skillfully swung into its allotted line, pushed through to the speed side, then, accelerated at legal maximum. Within minutes it drifted back to slow side, circled around in a large ellipse and softly settled on top of Project Ozma X, Building 24.

Michael O'Hara jumped out, pushed his plastic identification pass into the first check point and leaned his briefcase against the doorway turnstile impatiently waiting for the automatic mechanism to release its prison-like stance.

From the roof door to his office was only a matter of seconds -- into the executive shaft, down four flights with quick deceleration, then step out through the blue doorway at the rear of the elevator cab.

Throwing his briefcase down at the first plush air-couch, he reached for the outer office switchbox without bothering to seat himself first. He pressed the most prominent button-depression, then spoke: "Mary?"

"Yes, Sir! Good morning, Sir! You have an unusual number of callers this morning, Dr. O'Hara. There's Jake Sidstrum of News and then. . . ."

"Cancel them all," he interrupted quickly. "Mary, don't let anybody less than the President, himself, in my office this morning. Even then I would want you to stall him off as long as possible.

"Next, I want you to come in here. Oh -- lock your outer door first. Mary, this is a Grade A emergency. See that you do exactly what I say."

Mary Clibourne, petite, pretty, but not unusually so, hair color changeable with the style, blue eyes, of devoted loyalty to her new boss, moved quickly to her outer office door and locked it tight. She turned to her auto-secretary



to inspect its ready-status, flicked all incoming calls to automatic answer and standby, then, with only the briefest of looks at herself in her desk mirror, needlessly pushing her latest hairdo with the ends of her two fingers, she rushed into her chief's inner sanctum.

Michael O'Hara looked up from the papers now littering his desk top and asked: "Who gave them the news and when, Mary?"

"Gave what news, Dr. O'Hara?"

"About the so-called invasion from Eridani. Didn't you hear the news this morning?"

Quite at a loss to explain the departure her employer's questions had taken, Mary delayed her answer long enough to search through memories for any possible event of the last few days which just might explain them. Drawing a clear blank, she finally replied, "I came early this morning and I didn't listen to the news. I usually listen, but this morning I didn't feel like asking it to come on."

"Sit down, Mary," Michael invited. "This day will probably prove to be the most nerve-wracking of your career at Project Ozma. How long have you been here, Mary?"

"Twelve years."

"And I've been here but six months," he mused.

"According to the late morning news, 'unofficial, authoritative' sources have finally determined the Eridanian motives. When their starship *One* arrives two years from now, they intend to enslave mankind for some evil purposes.

"All Earth governments are disturbed and even President Ownouchai is holding special cabinet meetings."

Mary's mouth dropped open until, finally, an audible gasp issued forth as her breath suddenly stroked inward.

"I think you understand how silly the whole proposition is," Michael continued. "But with an election year coming up, tax burdens to consider and the usual four-year defense for Project Ozama budgetary requirements, whoever started this rumor picked on the right one sure to create a maximum nuisance, and may even prove lethal to us."

"I'll call the Sound-A-News distributor and find out the source of their rumors," Mary volunteered.

"Not a chance. If they're politically motivated -- a simple phone call won't do. And, if this is a genuine deliberately distorted leak from inside the project, they still aren't going to release their source of information."

"But why would people believe such trash, Chief? Hasn't Project Ozma given great value for value received? In the past fifteen years everyone has had their standard of living raised tremendously by our contact with Epsilon Eridani. And they are not much farther along technologically. Aren't they a Type I civilization -- about 4×10^{20} ergs per second in energy consumption?"

"You know that. I know that. The scientists and politicians know that. In fact, any thinking man knows that the idea of enslaving mankind from 10.8 light-years away, using only Type I technology, is just plain stupid. But we aren't dealing with thinking men on this issue.

"As a matter of fact, we're dealing with the hidden fears, prejudices and hysteria of 'plain folks'. Who do you think the politicians will heed? The thinking men? Or, the numerically larger 'plain folks'?"

"Plain folks," Mary sighed grudgingly.

Outside, in Mary Clibourne's office, a red light flashed urgently; then, after exactly thirty seconds, light beams switched in hidden machinery, lesser priority controls were by-passed and the signal was shunted to Michael's office.

A red light in the panel before Michael's eyes began flashing. Were Michael to wait thirty seconds longer, the sound switch would also be activated producing a simultaneous noise of annoying frequency and amplitude, demanding, like the red light, attention.

"It's started already. You know who that must be. Answer it for me will you, Mary? Tell him I'm visiting one of our new construction sites and that you have already sent messengers for me."

When Mary finished her deception, Michael ordered an emergency meeting of all department heads.

First to arrive was John Doane, Ph.D., tall, middle-aged and scholarly of both mind and appearance. He was head of Communications and Cryptography, otherwise referred to as C and C.

Next was slightly balding Peter Machtrix, Ph.D., head of Language and Context, otherwise known as L and C,



and understandably having a slight responsibility overlap with C and C functions.

Earth and Exo-biology's Negro chief, Samuel Chavits, Ph.D., and Physics and Chemistry's Polynesian chief, Win Lai, Ph.D., arrived together, their departments otherwise known as E and E, and P and C, respectively.

Margaret Cleveland, Ph.D., the tall, severe in appearance, auburn haired head of Culture and Customs, known as Cu and Cu to avoid the obvious conflict with Communications and Cryptography's C and C -- also euphemistically referred to as "copper and copper" behind Cleveland's back -- arrived last.

Michael wasted little time on amenities. Explaining the gravity of the situation briefly, he asked each in turn if they knew the source of the so-called "authoritative source."

Only Win Lai had not heard the latest newscast but both he and the others quickly disavowed any news leak from their departments.

Samuel Chavits summed it up for all when he said, "I've been with Project Ozma X for ten years, ever since the Eridanian star ship began its trip. In all that time, our department has cooperated fully with the news services, freely giving them every worthwhile deduction and useful information. We would have no reason for creating the hysteria. Neither would we have any basis for creating it."

Once again Mary Clibourne's red light flashed and this time it was promptly answered.

"Just a moment please, I'll see if they've found him yet," she sweetly replied.

Speaking their standard code-word toward her chief's intercom, after carefully disconnecting the incoming caller, she said, "Dr. O'Hara, he's on again. Have you been found yet?"

"No!" Michael quickly shouted. "Hold him off just a little longer, please!"

Turning back to his department heads he spoke again, saying, "If I don't have the answer to this puzzle within the next few hours, I'm afraid Project Ozma will be in serious trouble, for the tenth time.

"The politicians are on our neck again which means we have got to pacify the public in some proper and reasonable manner. All of you must remember the history of the past nine Projects. The first Project Ozma in 1960 headed by the American radioastronomer Dr. Frank Drake, developed a 21 cm wavelength receiver for the detection of interstellar radio signals of intelligent origin. He chose the stars Epsilon Eridani and Tau Ceti, both of about eleven light-years distant, as the first objects of investigation, using his newly designed receiver and the 27-meter Bank antenna. Financial and time investments were small -- a few thousand dollars and two hundred hours of listening time, to be exact."

Michael O'Hara paused briefly in his narrative, then turned to his C and C chief, saying, "John, I'm going to push everyone as much as I can for a timely answer to the current news distortion, but for the sake of proper background for all, tell us about the first apparent contacts."

"Excuse me, Dr. O'Hara," Margaret Cleveland interrupted, "ask him to explain Type II and Type III categories, too. I've heard them before but we don't use such classifications in Cu and Cu."

Michael nodded to John Doane who easily picked up his portion of the conversation.

"The twenty-four year old Irish graduate student, Jocelyn Bell, original discoverer, a Mullard Observatory team at Cambridge University under Dr. Anthony Hewish and the American Dr. Frank Drake, at his Arecibo Ionospheric Observatory in Puerto Rico, both studied signals possibly generated by a Type II civilization capable of utilizing and channeling the entire radiation output of our sun, about 4×10^{33} ergs per second.

N.S. Kardashev, who you will all remember as an associate of the Soviet astrophysicist I.S. Shklovskii, at the Sternberg Astronomical Institute invented the categories Type I, II and III as measured by capability to control and output greatly different orders of magnitude of energy. Since Type III would represent a civilization with access to the power comparable to the output of an entire galaxy, some 4×10^{44} ergs per second, neither Type II nor Type III civilizations seemed like good initial contacts for our primitive society.

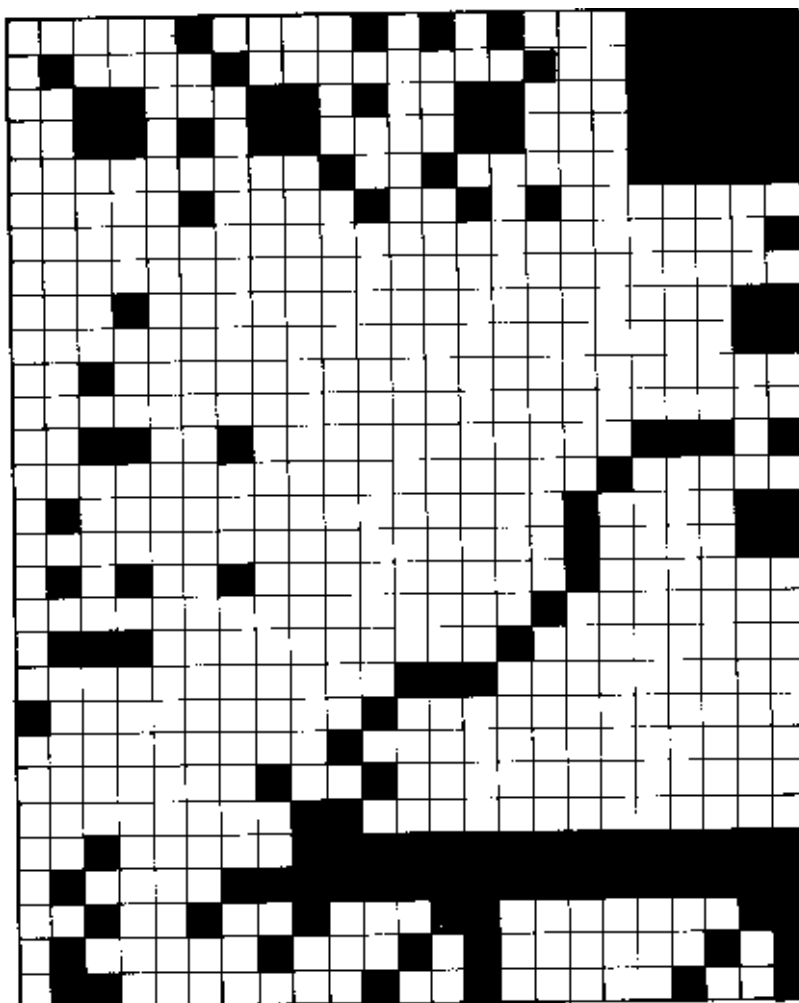
"Anyway, when Drake and others made their studies in 1968, they found signals which occurred at intervals of 1.337 seconds with a regularity far greater than that of any ordinary timepiece. The intensity of each pulse was highly



"They sent us the standard Frank Drake binary 'yes' and 'no' type of signal in a series of pulse-no-pulses which included repetitive strings of 667 digits as shown below the figure. These were easily factored into two primes, 23 and 29, which signaled that either the picture -- and it had to be a picture since most alien intelligences would be expected to be sensitive to light in some significant manner -- was 23 rowed by 29 columned or 29 rowed by 23 columned. It proved to be the latter, as shown in the picture below the binary bit display. John pointed to the second picture below Michael O'Hara's head. The picture consisted of a 29x23 row by column of squares, with each binary one bit made black, and each binary zero bit made white.

O'Hara said, "For the sake of proper background in what promises to be a dirty political campaign this year, will you brief us on the first interpretation made of the picture?"

John pushed his chair back and walked to the large crossword puzzle-like picture hanging behind Michael's desk.



29 row by 23 column pictorial interpretation of binary bits initiated from Eridani Epsilon



Using his pencil he pointed as he spoke, saying, "Here, in the far right corner is their sun and immediately below are four planets. Notice that the second and fourth are massive bodies beside the other two, probably like our own giant gas planets.

"Streaming off from Planet Three is a diagonal-like line which moves directly toward the head of the alien entity which is found in the bottom right-hand corner. This indicates the being also comes from Planet Three of his four-planet system.

"Apparently the being has four legs and either mandibles, tentacles or arms extended from his anterior portion. On the dorsal portion are either ears, antenna, or extra mandibles, or tentacles or arms.

"Later information has refined our knowledge so that we now know that all four extended features are kinds of tentacles around an anterior brain case surrounded by light-sensing eyes.

"At the top of the picture are the Bohr-like pictograms representing, respectively, hydrogen, oxygen and carbon telling us that the alien is composed primarily of these ingredients and that it lives in an oxidizing atmosphere similar to ours -- at least we are now sure of this -- and also, by use of the out-of-date Bohr-like atoms, telling us that his technology level must be close to ours.

"Immediately below the hydrogen atom are the binary numbers 1, 2, 3, 4, 5, 7 and 8 modified by the two parity checks seen after 3 and 5 to force every number as an odd set of pulses. We don't know why the number 6 was missed, but perhaps by their reasoning, only an intelligent receiver would assume that it was missed deliberately to convey the fact that an intelligent entity sent the message.

"Immediately below the number 8 was this undecipherable symbol," here John lowered his pencil to the bottom left corner, "which we have subsequently learned represents the alien's name for itself, much as we call ourselves by the symbol 'man'.

"Frank Drake of Project Ozma I independently invented this type of cryptograph and it was the same type which we used in Project Ozma IX sending straightforward and in the best tradition of Drake, Carl Sagen and Shklovskii."

Mary opened the door to look over the assemblage hoping that she could speak to Michael without undue interruption.

Michael looked up and asked, "Yes?"

"Dr. O'Hara, I'm terribly sorry to interrupt you again but the President is back on the line. I wanted you to know that I told him you had left the Antarctic base for C and C's satellite on the far side of the Moon. He's sure to expect to hear from you soon and I must admit I overlooked the little matter of how to explain your sudden re-appearance back on Earth when you do call him."

"Never mind, Mary, I'll think of something when the time comes. Oh, and thanks."

As Mary still held open the door, he asked, "Is there anything else?"

"James Conway of E and E has been trying to get hold of Dr. Chavits for about ten minutes. He says if Dr. Chavits is not available, he must talk with you."

Michael turned to Samuel Chavits to ask, "Anything so vital that we must interrupt this conference, Sam?"

"Not that I know if, Mike."

As Mary closed the door, Michael O'Hara turned to Margaret Cleveland, saying, "You came here next didn't you, Margaret? About ten years ago, wasn't it?"

"That's right. The Eridanians hadn't begun to send Cu and Cu information for about a year. Then, suddenly, a whole flood of textbooks arrived that puzzled C and C, E and E, and P and C as they were then organized.

"That was about the time that Peter Machtrix formed up L and C with Language and Context holding top priority until semantics made sense. Actually, I started with Peter here," she nodded at her former supervisor, "but found my interest to be more in line with Culture and Customs once we had deduced that their incoming materials involved concepts in that direction."

"What was the first valuable information to be sent to us?" Michael asked of the group in general.

Win Lai removed his thick lenses before speaking. Everyone around the table automatically looked toward him.



He said, "I didn't arrive until about five years ago but I understand that my predecessor sent the equivalent of our total chemical and physical knowledge once fast-time was discovered by C and C. Actually, as I understand the problem of communication time, the radio waves traveled at light speed but the information, the semantic coding, was indexed at about 10^{-2} that of light speed causing the normal 10.8 light-year lag to be considerably exaggerated when exchanging information.

"C and C came forward with their text scanner/condenser enabling us to encode all of our ordinary natural science texts from memory storage directly into the Ozma transmitter in the agreed upon binary-Drake coding."

"Didn't the same device work for our biological texts?" Michael asked Samuel Chavits.

"Yes, up to a point. But whenever we tried to encode arbitrary classifications we bumped into the Cu and Cu problem as well as the L and C problem. So long as we stuck with 'pure' science, the translation worked just fine."

"But what was the first valuable information to be sent to us?" Michael asked.

"I meant to add that their textbooks in the natural sciences came first but we had to wait on C and C's semantic coder before we got much use of them -- or so I've been told," Win Lai answered.

Michael spoke, apparently to no one, saying, "Get the coffee urn working, Mary."

His sensitive speaker shunted apparently endlessly circling electrons outward and they, in their turn, triggered light-beam switches which activated Mary's speaker repeating his message.

Mary opened her drawer taking out a fresh package of coffee as was her custom.

"Am I fair in asking if a goodly proportion of our technical knowledge has either been sent or is unretrievably on the way to Epsilon Eridani?"

Everyone nodded their assent.

"How well do they know what we are like?" he asked of Samuel Chavits.

"Well, we sent our DNA-RNA patterns some twelve years ago. And we have sent considerable quantities of organic chemistry, but we're not exactly sure what they were able to make of our evolutionary information which dictates so much of the way our biology and behavior operates."

"But it was sent?" Michael persisted.

"Yes."

Mary brought coffee to all and another message to her chief. "I've been able to hold off the Presidential office all right, but James Conway is outside and he claims he's going to sit there until he sees someone of importance no matter how long he must stay."

"All right, Mary. See if you can find out what he wants. Also, bring him some coffee. He might as well relax, too."

Michael took his first sip, scowled slightly, then said, "O.K., that sort of sums up what we've done. We've assumed from the start that Epsilon Eridanians were not inimical and, even if they were, could not harm us from a base of 10.8 light-years away.

"When did they send off the starship? About ten years ago, wasn't it?"

They all nodded in the affirmative.

"What do we know of it, Win?"

"It's fast; based upon their dense-photon physics, it can accelerate to near light-speed in a matter of only a year and decelerate in about the same time. It can't be much bigger than fifty by one hundred and twenty feet. It's made of lithium molecules frozen tight by their wavicle iteration patterns. When we tested the material we found it to be an excellent pseudo-dense screen for either fast or slow particles.

"It was probably assembled in orbit since their planet is considerably denser than ours by a factor of 3 G's. We know nothing about its possible armaments or other offensive weapons, if any.

"They told us that only ten aliens inhabit the ship and that their atmosphere would be approximately equivalent to ours but that its density, naturally, would not be. I don't imagine that they will be able to live very well in an unpressurized atmosphere will they, Sam?"

"No, so far as we know, they will need to maintain residence inside their ship or an equivalent pressurized chamber. We have been preparing several of them scattered around the globe at various vantage points."



"Is it the general consensus of everyone here, then, that we have no evidence of any inimical intent?"

Everyone again nodded in agreement.

"So much for what we send out. Now, what have we gained in return?"

Peter spoke first, saying, "Language and Context was the first to gain sudden large chunks of knowledge. For the first time in human history we were able to separate language, it's context and human behavior. Mathematics, too, grew a thousandfold. We've made great strides in communicating to our own plant and animal life, now able to understand their behavior patterns as kinds of language. I would estimate, off the top of my head so to speak, that we have advanced several thousand years in this direction."

Win Lai add his portion next, saying, "We can second that estimate in our field, Chief. We have sufficient material to keep us busy for at least a thousand years, now, and every bit of it either supplementary or complementary to our own knowledge. Crystal light switching which enables our electronics to work at light-speed is a trivial minor fallout since we already had equivalent, but slower, principles; but, their's promises to help solve the gravity-space-time conundrums, the single-theory of everything theory.

"Information storage in single-atom reverberating units and indefinite sub-space power units seem to be practical now, and just around the corner; we almost have, but not quite, the complete secret of psi phenomenon. Is it necessary to go on?"

"Sam, what about you?" Michael asked.

"Longevity is just about assured along with near-ability to synthesize large protein life forms up to and including man. As a matter of fact, we've progressed to the point where we are now working on synthesis of exo-biological molecules and their supporting structures."

"To sum it up, then, except for the understandably lagging Culture and Customs department, we have gained at least as much, if not more, than we have given. Is that correct?"

Again came the unified affirmative nods.

"And everyone here is absolutely sure that the only possible news releases from his or her department were standard formal statements just like those given out for the past fourteen or fifteen years?"

Michael looked at each of his department heads, squarely in the eyes, waiting for each individual affirmative nod.

"All right. Here's what I want all of you to do. Go back to your departments and find out exactly what we sent to Epsilon Eridani 10.8 years ago. Send it to me in detail form along with its summary, immediately. Also, send along every news release stemming from your department in the past three days. I want those in detail, too.

"Oh, Margaret! Stay a moment will you? I want to get your rundown on Cu and Cu's progress."

Mary entered as soon as the other department chiefs had left. She closed the door behind her quickly and said, "Dr. O'Hara. The President has made contact with the latest flights to Project Ozma's Moon satellite and found you weren't there. I apologized and told his secretary that I had misunderstood your earlier message. But I'm not at all sure what to do now."

"Tell him you've located me at my hunting lodge and that I'm on my way to the office now. You expect me in about an hour and a half.

"Oh, Mary! Have you listened to the latest news?"

"Yes."

"What's it like out there?"

"Pressure seems to be getting heavier. The public hasn't bought the story outright but a clear-cut explanation better be forthcoming soon or our necks are on the block. Even then, according to most commentators, it's doubtful that Project Ozma X can be saved after this hysteria."

"Have they released any more information on their source?"

Mary paused with a long drawn out "Noooo! They did mention the ridiculous idea that animals, shaped just like humans, were already being synthesized by the Eridanians for purposes of slavery."

"Get me a summary from the Sound-A-News. And thanks again for getting the political powers off my neck for



a while. I think I'll either have an answer for them or go down with the boat within another hour and a half.

"Oh, yes! Bring Margaret and me another cup of fresh coffee."

Turning back to his remaining department head, he asked, "Margaret, what seems to be the major contributions of the Eridanians to our understanding of culture and customs and vice versa?"

"Well, Dr. O'Hara, it's a real tough problem. What we have in common with the Eridanians are the elements carbon, oxygen, hydrogen and other like chemicals. From there on out it's all uphill. It's sort of like saying that we have the constituents of the sun in common, therefore we ought to be able to compare our behavior.

"It just doesn't work out that easily!

"They have four tentacles, we have two hands. They have four legs, we have two. They have more eyes. They live on a heavier planet, their science is roughly forty years ahead of ours, with some striking exceptions where they seem to be considerably more advanced, and their evolutionary patterns start with just grossly similar proto-proteins, then diverge sharply under different conditions of temperature and pressure.

"They *did* begin in the seas as did we. But our attitudes and behavior patterns, which can easily be traced back to the first proto-man protozoan and through each successive evolutionary layer of fish, mammal and ape, bear no resemblance, superficial or otherwise, to the Eridanians.

"We don't even have equivalent biological counterparts in our oceans and continents to point to so that we can say, 'That is like the evolutionary shape which the Eridanian once passed through.'

"Oh sure, I know what the public thinks in terms of biological analogs, but the truth is that news-release descriptions are purely analogs.

"Man identifies his personality and survival characteristics with his territory. Feelings of possessiveness are strong for those things which he identifies as 'his' or 'his home'. Over ten years ago we attempted to communicate 'territory possessiveness' to the Eridanians and you know the reply that we recently received?"

Michael reached for his second cup of coffee, turned to Mary, as she said, "James Conway changed his mind about seeing his own chief. He'll settle for only you, now!"

"O.K.!" Michael sighed. "Send him another cup of coffee and tell him to please wait."

Turning back to Margaret as though the conversation had never been interrupted, he said, "No, what did they send back?"

"'Territory possessiveness' was associated with the concept of a 'subset of a set'.

"At least that's the state of our linguist art at this time. We're all depending on the spaceship and its crew to provide the contacts which will help us to build a knowledge base in culture and customs."

"O.K.!" Margaret, send that material up with your other material, will you?"

Margaret left and, before Michael O'Hara could begin his nervous pacing, the first of his department heads' reports began to flow through his desk reproducer.

Over ten point eight years ago, according to his reports, we had transmitted the full text of Einstein's Special and General Relativity Theory, the then new Unified Particle Physics, large protein synthesis and *Medelsohn's Complete Topologies*.

Within the past several weeks we had received photo-nucleonics; inverse electromagnetic spectrums; some as yet undecipherable materials seemingly related to philosophy, or perhaps related to religious convictions, or perhaps something totally different than either one; and we'd received Margaret's 'subset of a set' conundrum. We'd also received a schematic picture of a human-shaped being along with chemical and physical descriptions of human associated biology.

The latter two pictures were placed aside while Michael surveyed Project Ozma X's daily news releases.

There seemed to be nothing detrimental in any of the reports: P and C had reported that inverse electromagnetic spectrums were giving some trouble since photon mass appeared to be infinite contrary to man's normal paradigm; C and C was experimenting with pulsed gamma rays; E and E had given no report during the past week, but the week before had published an exotic article on Eridanian protein synthesis.



Michael noted the author's name was "James Conway, Ph.D., of Department of Earth and Exo-biology, Project Ozma X." He placed the article with his small, but growing papers of interest and spoke aloud, saying, "Mary, is James Conway still outside?"

"Yes, Dr. O'Hara."

"Tell him I'll be with him in just a few minutes."

The final release came from Cu and Cu which included only the decipherable portion of the maybe-philosophy, maybe-religion, maybe-something else, along with the pictogram of the human shape in Drake code. This, too, he placed in his pile of current interest.

"Let's see." As he spoke to himself the desk phone ignored his comments. "Ten years ago we mailed to them our fundamental chemistry and textbooks. We also sent them *Medelsohn's Complete Topologies*.

"This week we received their first reaction to our ten-year-old comments: A human shape with proper instructions for complete chemical and physical synthesis of same; and 'subset within a set' along with an undecipherable maybe-philosophy which is apparently in Culture and Custom's interests.

Michael sipped at his coffee, having talked aloud in sounds and words that only partially reflected his thoughts. He thought: *I sense something important tying these things together, but I'm not sure of what. Can their "philosophy" actually be a branch of their mathematics? What would "subset within set" have to do with territory possessiveness and defense by animals? If P and C is confused over something as simple as photons of infinite mass, how can any of us be sure of what we've received?*

"Mary, send James Conway in," Michael spoke impulsively with sudden intuitive feeling.

The very young and handsome researcher came rushing through the door carrying manilla folders and lab reports. His black hair was well combed, his shoes well shined and his suit neat. Otherwise, his pince-nez glasses contrasted sharply against his rounded facial features giving every impression of one who had definitely *not* the deep-study characteristics which he actually had.

"Dr. O'Hara," he shouted with great enthusiasm. "We've cracked the code! I knew you'd want to be the first to know."

"Whoa! Slow down, Dr. Conway. What code have we cracked?"

Dr. Conway skidded to a stop against the Project Ozma director's desk. He blinked several times as if to say, *Does he really not know what we're doing? Especially when it's so important!*

He removed his awkward pince-nez glasses, wiped them against his jacket lapel and deliberately replaced them with some final adjustments before speaking again.

"Why, the Eridanian code, of course!"

"I thought we had cracked that code back in Project Ozma IX?" Michael began to worry about his biologist's insanity.

James Conway blinked again, then, as though he'd finally come up for air from the deep depths of a black pool, he spoke, saying, "I'm sorry, Dr. O'Hara. In our department, the 'code' is the genetic code of the Eridanians. They sent us their biological chemistry about the same time that we sent them our genome. We've just now determined its chemistry and can now reproduce the Eridanian in complete detail. I thought it sufficiently important to tell you as soon as we were sure. I told Sam on his way out."

Michael thanked his excited employee, asked for a detailed report to be immediately forwarded, and returned to his puzzle. Somehow he'd hoped that Conway had part of the solution to it, and perhaps Conway did. He spoke once again, saying, "Margaret Cleveland?"

His vocal tone was matched against a million other arrangements of the same vocal symbols, light rays again re-shunted electron flows and the speaker in Cu and Cu awoke to ask for "Dr. Margaret Cleveland, please; Dr. O'Hara calling."

Margaret spoke immediately, saying, "Here Chief."

"Who interpreted the 'subset within set' statement, Dr. Cleveland?"



"I don't know, but I'll find out."

"Never mind! Was it someone in your department?"

"Yes! I'm sure, since no one else could make sense out of the whole message they threw it to us as they usually do."

"O.K.! Get Peter Machtrix in L and C to personally go over that whole text. Tell him I want to know if it could be some form of 'pure' mathematics. Tell him I need the quickest answer he can formulate. Say, twenty minutes."

"Right, Chief!"

Michael turned back to his intercom and spoke again, saying, "Mary, send some sort of snack over. I'm burning up more nervous energy than I'm putting back in. Another coffee will do, too."

Michael turned back to his papers shuffling them first one way then another but always coming back to his original hunch. Any conversation carried out over a time lag of ten point eight years is bound to be tedious. And this one was the apogee of tedium.

Margaret called back to say that she'd found a modified form of the news release from her department. Every one of Earth's messages ten years back were routinely matched against messages received from Epsilon Eridani and this one had been no exception. The Sound-A-News analysts had taken Cu and Cu's first exploratory conjectures regarding cultural behavior patterns and their basics -- particularly the human primate's drive for territory defense -- sent out ten years ago -- and placed them alongside the answering communication involving both the human shape and its synthesizing chemistry and the very ambiguous messages which were assumed to be philosophical at the time of its release but perhaps might be religious, or now, by Michael's guess, might be mathematics.

Margaret finished her summary, then added, "That statement on 'subset within set' wasn't quite complete when it went out.

"A 'closed set within a closed set' could easily be interpreted to mean that one Eridanian controlled another in his culture. Or that one Eridanian protected his territory and those who were subservient to him. That's the way it would make sense for us.

"But it was supposed to have read 'open subsets of an open set'."

"I still don't understand!" Michael responded.

"Well, every junior high-school kid knows that both the union and intersection of open sets results in sets which are open!"

"You'll have to be clearer than that."

"Well, *goodness*, Chief! How can the Eridanians be territory-protecting creatures if everyone's territory is open to every other person?" Her tone, like that of any specialist, was filled with sympathy for the poor generalist who could not understand the very basics of one's field.

Michael, struck with an inspiration, paused in thought, and then said, "That does it Margaret. I've got the answer, I think. Prod Peter up, will you?"

Peter rang back within minutes.

"I can't give you an exact analysis right now, but I think you hit it on the head. It wasn't a philosophy. Or, rather, it was a philosophy, like Einstein's theories were philosophies backed by formal mathematics. I've got Win Lai in P and C going over it and he says that it looks like the Rosetta stone for untangling inverse electromagnetic spectrums. He's having a hard time adjusting to the new concepts though, and plans to hire some new college graduates with more flexible imaginations."

"Thanks, Pete. I think everybody can relax now. I believe I've got the complete story. I won't guarantee to maintain our budget, but I believe we can at least sustain ourselves." He closed off quickly then spoke again, saying, "Samuel Chavits of E and E."

"Samuel here!"

"Listen Sam, I just talked to James Conway. Is he for real?"



"What do you mean?"

"Can your outfit actually reproduce the complete biology of the Eridanian as Conway claimed, the whole alien genome?"

"If he said so, I'd believe it, Mike. We've always been pretty well up on their biology. It was only their basic genome that caused difficulty primarily because of translation problems. I knew Conway and his group were working on the problem but didn't expect it to be solved this quickly."

"O.K.! Thanks, Sam."

"Get me C and C, John Doane."

"John, here!"

"Get ready to prepare an interrupt message to the Eridanians. Do you still have the beam on their ship?"

"Tighter than ever."

"I want two messages prepared. First, see James Conway and get his Eridanian genome translated along with a picture of the Eridanian. prepare a second message to divert the Eridanian ship to our satellite around Mars."

"Will do!" John answered quickly. "Anything else?"

"Yes! Starting today, I want you to begin applying your Communications and Cryptographic skills to communicating to human Earth people. Your first public relations budget will include manning for a dozen personnel including a working member of all the other departments. I want emergency action on the organization and from now on, all news releases will be channeled through your department."

Mary interrupted the conversation -- something never done before -- to say, "The President of the United Nations is on the video-phone, Dr. O'Hara. Will you take his call now?"

Michael signed off from John Doane and spoke to his desk video-phone, saying, "Michael O'Hara here."

"Dr. O'Hara, we all are quite concerned over the latest news release. I *do* hope you have some additional information on the subject."

"I can give you the whole story now, Mr. President. I'm sure you'll understand when I tell you it was poor public relations and only that. I've already taken steps to prevent its reoccurrence."

"We didn't tell the press that Eridanians were to invade and enslave Earth people but I'm sure that some of our unscreened releases might have given the news analysts the material which could be twisted in that direction."

"You see, Sir, over ten years ago, we transmitted the human genome along with attempts to begin conversations involving mutual behavior and customs. It must have taken the Eridanians only months to interpret our genome code and to project the details of our anatomy and physiology. They *are* about forty years ahead of us, you know!"

"The news analysts associated the Eridanian's answer-- which arrived only several weeks ago and which stated that they had received and understood our biochemistry -- with portions of an answer involving abstruse mathematics and part of their descriptive material on culture and customs."

"Project Ozma X's news releases failed to accurately release a portion of their 'culture and customs' answer which was supposed to say something like 'open sets within open sets'. That's a crude approximation but, when we described the idea of personal territory, or personal property, eleven years ago, they answered with their own mathematical text and the concept of 'open sets within open sets' -- they were telling us that they laid no claim to personal ownership of property or space -- kind of like our American Indian who felt that all territory belonged to whomever wished to use it for the moment."

"The news media was given the text in the form of 'closed set within closed set', which was a mistake, and this improperly translated by them into 'We control all within our territory.' *That* idea coupled with their acknowledgement of understanding of our human genetic structure, as well as their stated ability to synthesize the human protoplasm and form, led the news media to make false assumptions about their practices and intent."

"Believe me, Mr. President, they are *not* planning to enslave the human race. The whole idea is impractical and absurd."

"I believe you," the President responded, "but the issue is too politically dangerous to ignore. What can you do



to stop it?"

"I've already prepared the message that will do it, sir. We will simply transmit our knowledge of their genetic pattern back to Epsilon Eridani. Eleven years from now, they will realize that they, too, can be duplicated by us and that we've solved their protoplasmic synthesis. But more important, our people will immediately regain some feeling of superiority once they realize it is in our power to create the alien, and, therefore, they will drop their atavistic fear of enslavement."

"That won't stop the ship, Dr. O'Hara, and the ship is where the people feel the danger lies."

"I've directed that they dock at our satellite around Mars, Mr. President. We just won't let them land on Earth or anywhere near Earth, Sir."

There was a long pause, and then: "I'll expect your written report on the matter, Dr. O'Hara, and, Oh, yes, I don't believe we'll be able to increase your budget this year. Perhaps with some luck, we'll be able to maintain it, however."

Michael smiled once the connection was broken. *The UN President is getting old, he thought. His hair is graying and his face is more lined than ever. He never spotted the doors I left ajar, which is not at all like his normal perspicacity. Given one full year of decently controlled public relations through C and C and we'll have the Eridanians on Earth, treated as great peace-friends for all mankind. It's time that Project Ozma began applying its knowledge for its own protection.*

Meanwhile, the aging, graying President turned away from his recent conversation with O'Hara, massaging interesting thoughts of his own: *Project Ozma pulled itself out of that one! These young Project directors are all alike -- think they are originators of political subterfuge, double-talk and misdirection. Sure hope his new public relations department can get those Eridanians down here and welcomed within the next two years. I'd like to see and meet one, myself. Anyway, it's about time that experts in communication began using their information for their own self-protection!"*

