

# Plato's Cave

by Poul Anderson

*The Three Laws of Robotics:*

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.

2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

THE MESSAGE REACHED EARTH AS A SET OF SHORTWAVE pulses. A communications satellite relayed it, along with hundreds more, to a groundside clearing station. Since it designated itself private, the station passed it directly on to its recipient, the global headquarters of the United States Robots and Mechanical Men Corporation. There a computer programmed with its highly secret code converted digital signals to sight and sound. An image leaped into being, so three-dimensionally complete that startlement brought a gasp from Henry Matsumoto.

The robot shown was no surprise—humanoid but large, bulkily armored, intended for hard labor under tricky conditions. The background, though, was spectacular. Nothing blocked that from view but a couple of structural members. Needing no air, drink, food, little of anything except infrequent refuelings, robots when by themselves traveled in spacecraft quite accurately describable as “barebones.” At one edge of the screen, a slice of Jupiter’s disc glowed huge, its tawny swirls with clouds and spotted with storms that could have swallowed Earth whole. Near the lower edge was a glimpse of Io. The sights flitted swiftly past, for the ship was in close orbit around the moon, but the plume of one volcanic outburst upon it dominated the desolation for just this instant, geyserlike above a furious sulfury spout.

The young technician was doubly shaken because the apparition was so unexpected. He had merely been taking his turn as monitor, relieving the tedium with a book. No message had come in for weeks other than regular “All’s well” tokens. What the hell had gone wrong?

A deep voice rolled over him. It was synthesized; in airlessness, the speaker directly modulated a radio wave. “Robot DGR-36 reporting from Io. Robot JK-7 has suspended operations—prospecting, mining, transportation, beneficiation, all work. When my crew and I landed to take on the next load of ore, we found every machine and subordinate robot idle. JK-7 himself was not present, but spoke to me from the hills behind the site. He declared that he was acting under strict orders from a human, to the effect that this undertaking is dangerous and must be terminated. I deemed it best that we return to orbit and await instructions.”

“M-m-my God,” Matsumoto stammered. “Hold on. Stay quiet.”

At the present configuration of the planets, his order would take some forty minutes to arrive. However, anticipating that the first person he reached would be a junior, DGR-36 had already gone immobile. Matsumoto swung about in his chair and frantically punched the intercom.

He needed an outside line, local time being well past ordinary working hours, but soon Philip Hillkowitz, technological chief of Project Io, was in the little office. Hillkowitz in his turn had called Alfred Lanning, general director of research, who arrived almost on his heels. The two men stared at the image of the robot, and then at each other, for what seemed to Matsumoto a very long while.

“Has it happened in spite of everything?” Hillkowitz whispered. “Can the radiation really have driven Jack insane?”

Lanning’s tufted brows drew together. “I shouldn’t have to remind you,” he snapped, “tests showed his shielding adequate against a hundred years of continuous exposure.”

“Yes, yes, yes. But those hellish conditions—” Hillkowitz addressed the robot. “Edgar, did you notice any other abnormality when you were on the ground? For example, did metal seem pitted or

corroded?”

“Not a bad question,” Lanning said. “But in the eighty minutes till we hear the answer, we’d better think up a system for learning more, faster.”

The officers dismissed Matsumoto, enjoining him to let out no hint of trouble; and they canceled subsequent vigils. Inevitably, this would start rumors by itself. While they waited, they sent out after coffee, speculated fruitlessly, paced, overloaded the air conditioning with smoke.

“No, sir,” DGR-36 replied. “I took it upon myself to examine equipment and robots that were present. No trace of mechanical, chemical, or radiation damage was apparent to my sensors.”

“Good lad,” Lanning muttered. He had helped design a considerable degree of initiative into yonder model.

“I spoke with the other robots,” DGR-36 continued, “but they could only tell me that JK-7 had directed them to stop work. I had no authority to order them back, and in any event, as I understand the situation, only JK-7 can successfully supervise them. I urged him to resume operations, but he stated that he was under directions that took precedence over all others, whereupon he broke contact. “ Again he turned into a statue.

“Have you observed any activity since?” Hillkowitz asked.

“This settles it,” Lanning said to him. “We’ve got to get hold of Susan Calvin.”

“What, already? Uh, yes, she can better judge derangement than either of us, no doubt, but—I mean, this time lag, and Jack himself out of touch—we can’t dispatch her to the scene.”

“No, I expect we’ll want, hm, Powell and Donovan; they’re probably our best field operatives. But Calvin is the one to decide that.”

Lanning keyed for her home. Presently a voice emerged waspish: “Well, what do you want? Who is there? If your reason for rousing me out of bed isn’t excellent, you will regret it.”

“Phil Hillkowitz and myself,” Lanning said. “Look, you’ve got to get down here right away. We have a crisis on Io. I don’t dare tell you more except in person.”

“Afraid of electronic eavesdroppers? How melodramatic!”

“Well, maybe unlikely, but Project Io is in trouble. You know how much it means, and how determined the opposition is.”

“I also know how that room you’re in must smell by now,” retorted the robo-psychologist. “Whistle up some of your technies and have me patched in on a properly sealed circuit. Full audiovisual, and direct access to the main databank. Given the transmission lag, they’ll have ample time if they go about it competently.”

Thus, after a while, the men saw her image, primly erect in a straight-backed chair, sipping tea, across from the robot’s.

“We are not equipped to follow the actions of individuals when we are in space,” DGR-36 answered. “We have noticed no obvious movements, at least thus far.”

“I realize you don’t have perfect memory either,” Calvin said, “but I want you, Edgar, to tell me, as best you can—don’t be in a hurry; examine your recollections carefully—tell me precisely what motivation JK-7 gave you. In particular, what did he tell you about this human who allegedly appeared to him and ordered him to halt work?”

She signaled for a break in transmission to Jupiter and turned her attention back Earthward. “‘Appeared to’ is the right wording,” Hillkowitz said, sighing. His own gaze went elsewhere, as if to look through walls and across space. He might have been thinking, reviewing, though he had lived with this from its origins: *None of us can survive there. Io is deep in Jupiter’s magnetosphere. The trapped charged particles would doom us within minutes, unless we were inside shielding so thick as to leave us helpless. Not to mention the cold, or vacuum barely softened by poisonous volcanic spewings. We can make robots immune to these and even guard the positronic brain so well that the radiation does not ruin it. Or so we thought. Lanning and I, our team, we labored long on the task. And afterward our engineers did, for two years in the safer outer reaches of the Jovian*

*System, patiently guiding the construction on Io and the beginning of operations. But they could only communicate with Jake, and he with them, by radio and laser. At such times he perceived them and whatever they wished to show him; his communicator decoded the signals and he saw the images, heard the voices, inside that head of his. What now has he seen and heard, what new ghost came to him in that inferno where he toiled?*

“Precision is obviously essential,” Calvin declared. “Now, gentlemen, I shall call up the files on this project and study them for about one hour.” Her screen went blank..

“I might do the same,” Lanning said. “You needn’t, Phil. Io’s been your exclusive concern. Why don’t you catch a catnap?”

“Lord,” mumbled Hillkowitz, “I wish I could.”

The simulacrum of Calvin was back when promised, but told the men simply, “No comment, yet,” and waited with hands folded in lap. Even when that of the robot stirred, hers did not. But his speech brought her too out of her chair.

“Yes, ma ‘m. Seeing the site idled, hardly any ore waiting, and JK-7 absent, I broadcast a call and got an audio reply which I sensed as emanating from somewhere in the hills. He maintained that he had stopped work on command of a human who explained that it threatened the entire human race. He declined to go into detail, except that when I asked if he would at least identify this human, he told me it was the Emperor Napoleon.”

As low in mass and high in power as was compatible with life support, courier ship *Defin* could have made Jupiter in less than four days. Svend Borup would have medicated himself against the effects of such an acceleration and spent much of the time happily contemplating the hardship bonus due him. Unfortunately, Gregory Powell and Michael Donovan would not have arrived fit to get busy. At a steady one gravity, boost and deboost, the crossing still took under a week, and meanwhile U.S. Robots’s ace troubleshooters could become familiar with the vast store of background material given them.

When first they came up for air, at the first meal en route, Borup naturally asked them what was going on. “I was told almost nothing,” he said in his soft Danish accent. “The whole went so fast. They waved a contract at me, but it also says no more than that I take you to Jupiter and there help you as is needed. “The owner-captain was a stocky, balding man whose waistline might be due in part to frequent indulgence in pretzel-shaped sugar cookies from his homeland.

“Well, they had plenty reason to hurry,” Donovan answered. “Explanations could wait. Whatever’s the matter, maybe we can fix it—unless we get there too late. Anyhow, the government can’t afford—” He broke off, uncertain whether he should reveal more. Ole, one of the two robots that were the crew, helped him by entering the saloon and setting bowls of pea soup before the men. Knud, the other, was on watch, slight though the chance was of anything happening which the ship’s automatics couldn’t handle.

Borup nodded. “It is on Io. That is clear. They talk about reestablishing the station on Ganymede, but it is just talk so far, after the Yovian scare. Too little left for people to do there, too big a hazard from the radiation. Nobody today on all those moons or anywhere near, just the miner robots.” He wagged his spoon. “And it is a big, big investment in them, no? If the ore stops coming out, many banks are in trouble. And so are the world aut’orities who sponsored the venture and pushed it’t rough.”

“You’re pretty well up on events,” Powell remarked.

Borup chuckled. “For a fellow who mostly dashes around in space, you mean? No, no. Everybody knows what a powerful issue Project Io has been, pro and contra.”

“Still is,” Donovan muttered.

“Well, now that we’re safely under way, we can be candid with you, and in fact we’d better be,” Powell said. “Confidentiality—but frankly, if we fail, my guess is that it won’t make much difference what gets into the media.” He wiped his mustache, in which droplets had condensed from the steam off the soup. “Uh, I’m not sure what you may recollect of all the controversy about the project and all the hoopla while it was getting started. Since then it’s practically dropped out of the public consciousness. Another bunch of robots and machinery, working somewhere distant from Earth.”

“But wit’ great promise,” Borup said. “The Io volcanoes bring up such riches of minerals, more than in all the asteroids put together, no? It is the radiation that is the problem.”

“Not alone. We also have a dangerous, essentially unpredictable environment, quakes, landslides, crevasses opening, ground collapsing into caves, eruptions, the way Jupiter’s tides tear at that moon. Therefore an especially intelligent robot is required to run the show. The work gangs can be pretty ordinary models, not greatly modified, not too hard to provide ample shielding for. But the head honcho needs intelligence, a large store of knowledge, alertness, initiative, even what you mayas well call a degree of imagination. The positronic circuits of such a robot are all too easily addled. Protecting it—simply plating the head with a lot of material—isn’t enough. Compensatory circuits are necessary, and then you have to compensate for *their* effects. It wasn’t really certain, when U.S. Robots signed the contract, that this development was possible at the present state of the art.”

“Yes, I do remember.”

“Sorry.”

“It is all right. What have we to do but talk? And enjoy our soup. There will be meatballs after. Please to continue. “

“Well, we, uh, the firm did come up with the new robot, and everything tested out fine, and went fine, too, until now. But he appears to have suddenly gone crazy after all. He suspended work and sits babbling about it being dangerous to Earth. He says this came to him in a, uh, vision. “

“Ha, It’ ought somet’ing like that. Have you no spare?”

“I don’t know, but I doubt it,” Donovan put in. “Jack—JK-7—the number will tell you how many prototypes they went through—he’s practically handcrafted. Cost more than any three senators. Not a production-line item; how many Ios have we got? Anyway, how could we land a second Jack till we know what went wrong with the first?”

“Which first might interfere with the second,” Powell added grimly.

Borup looked shocked, in his mild fashion. “A robot interfering wit’ work ordered by humans?”

“Hard to imagine,” Powell agreed. “But, well, think. Because Jack is not only extra valuable, but essential to the project, and in such a hazardous situation, they’ve given him an unusually high Third Law potential. He’ll take as good care of himself as he can, whether or not that means sacrificing a great deal else. Of course, it doesn’t override the Second Law. He must carry out the mission entrusted to him, and obey any specific orders issued him by a human. But that potential is on the low side. What this means in practice is, if he, with his on-the-spot experience, if he thinks an order is mistaken, he questions it. He points out the flaws. Only if he’s then commanded to proceed regardless will he do so. Likewise, when he’s by himself he’ll use his own judgment as to how he should direct the overall job of mining Io.

“Well, now he’s gotten this delusion, or whatever it is. The First Law naturally takes precedence over everything else. He *cannot* knowingly do anything that would harm humans, or refrain from doing anything that would save humans from harm. His brain would burn out first.” Powell had been ticking the points off on his fingers. “You know this, everybody does, but often the interactions of these laws, the conflicts between them and the resultants, get so complicated or so subtle that nobody but a roboticist can make sense of what’s happening.”

“And not always the roboticist, right away;” Donovan chimed in.

“According to Edgar, the robot cargo-ship captain and he wouldn’t lie to us—Jack is convinced Project Io will lead to death and destruction,” Powell said. “Therefore he’s stopped it. I doubt very much he’ll obey orders to resume, unless somehow we can persuade him he’s in error. He might not even respond to our calls. Conceivably he’ll decide it’s his duty to actively resist further work, actually sabotage it. And, besides his high capabilities, if they aren’t impaired, that high Third Law potential will make him a very cunning, careful, probably very efficient guerrilla. “

“You have no way of yust making him stay quiet?” asked Borup.

Powell frowned. A moment passed before he said, “We can’t go to Io in this ship to hunt him down, and live, if that’s what you mean. Edgar and his crew are meant for space and stevedoring; they’d

be hopeless. Getting up a proper robotic hunting party would be monstrously prolonged and expensive. Meanwhile the capital costs of the stalled project mount every day, and as for the political consequences if the scandal breaks” He shrugged.

“No, no, I understand. But have you not some special passworded command to give him that makes you the absolute boss?”

Powell and Donovan stared. Borup blandly spooned soup...You’re smarter than you let on,” Donovan murmured. He slapped the table and barked a laugh...Yeah, sure we do. Hard-wired in. What with all the unknowns and unforeseeables, that was an elementary precaution. For instance, the scientists might discover a danger unknown to him, and not want to lose time arguing. Or if you’re paranoid, or ultra careful, you’ll worry about enemies of the project somehow slipping him a false order. Yes, there is a password. Top Secret, Bum Before Reading, known to a handful of people in the company and the government, and now to us two. It’ll probably be the first thing we try when we get there. Whether he’ll obey—he *is* insane, and this is not so basic as the Three Laws.”

“Insane, you believe,” Borup corrected. Donovan grimaced...We’d sure like to believe otherwise. If the radiation’s fried his brain, or something else on that chunk of hell has gotten to him, there goes the project down the tubes, probably, and a lot more besides.”

“What makes you t’ink he must be mad?”

Donovan and Powell glanced at each other before Powell nodded. “Why, he claims Napoleon came and told him to stop,” Donovan said. “That’s all we know so far. But isn’t it enough?”

“Napoleon? The Emperor?”

“Who else?”

“Now where would he have heard about Napoleon?”

“A reasonable question. Last *I* heard, Dr. Calvin was trying to research that. But you never know what stray scraps of information might get to a robot while he’s being activated and indoctrinated. A lot of people are generally involved, and he’ll overhear conversations. Also, now and then a brain picks up stray signals, telecast or—Remember Speedy, Greg?”

“How could I forget?” Powell sighed. To Borup: “A robot we dealt with on Mercury. A Second-Third Law conflict unbalanced him. He ran around and around in a circle gibbering Gilbert and Sullivan. We never did find out how he acquired it.”

“Hm,” said Borup. “Your chances do not look so good, gentlemen, do they?”

“Which means the chances for the world don’t.” Powell’s tone was bleak.

“Oh? True, much money will be lost. But unless you are a banker or a politician—”

“Bankers handle the money of working stiff’s like you and us,” Donovan said. “If Project Io goes bust, we could get one black hole of a depression. “

“And as for politicians,” Powell added, “they aren’t all clowns and crooks, you know. Here we’ve finally, just a few years back, elected a reform government with some bright, decent people at the top. It’s staked its future on Project Io. The opposition was terrific, you may recall. What, throwaway fortunes on a gamble like that? The idea that we’ll all benefit more from increased production, fairly divided, than from handouts and pork barrels was too much for the old guard. It fought right down the line. And it’s still got a large minority in the legislature, while the government itself is a pretty frail coalition. Let Project Io fail, and a vote of no confidence will throw us right back to where we were, or worse. “

“I suppose so,” Borup said softly. “I do not pay too much attention to those t’ings. When I am at home wit’ my wife, mostly we talk about the garden and the grandchildren. But, yes, we did vote for reform. It would be nice to see that man Stephen Byerly someday be coordinator.” He turned his head. “Ah, here come the meatballs. “

Seen from its little moon Himalia, Jupiter shone about as large as Luna over Earth but, in spite of its cloudbands, barely a fourth as bright. That pale gold glow, the glare from a shrunken sun, and the glitter of swarming stars shimmered on ice and vanished among upthrust crags. Clustered at the north pole, dome, masts, and docking facilities were a sight well-nigh as gaunt, yet welcome to human eyes. Borup

brought *Defin* to rest and linked airlocks. Powell and Donovan entered the mothballed engineering base to reactivate it. Gravity was virtually negligible; they moved through the gloom like phantoms, except when they collided with something and uttered earthy words.

After a few hours they had light, heat, air circulation, austere habitability. Donovan beat his hands together. “Brrr!” he exclaimed. “How long’ll it take the walls to warm up? I know it’s thermodynamic nonsense, but I’d swear they radiate cold.”

“Longer than we’ll be here, I hope,” Powell said. “Meanwhile we can eat and sleep aboard ship. Let’s get cracking.”

They settled themselves before the main console in the communications room. A coded beam sprang from the transmitter, computer-aimed inward through the lethal zone around Jupiter. A readout showed that Io was currently occulted by the great planet, but that shouldn’t matter. Two relay satellites swung in the Trojan positions of the same orbit. Six more circled Io itself, in the equatorial and polar planes. Between them, those identified Jack wherever he was on the surface and kept locked onto him.

“Himalia Base calling Robot JK-7,” Powell intoned. “Humans have returned to the Jovian System. Come in, JK-7.”

After a humming silence, Donovan ran fingers through red hair gone wild and groaned, “He must be completely around the bend. He talked for a little while to Edgar. “Useless here, that robot and his crew were bound for duty in the Asteroid Belt. ‘Now he won’t give us the time of day.’” He paused. “Unless he’s broken down physically. too.”

“Seems unlikely,” Powell argued. “His builders are as competent a bunch as you’ll find. Supposing conditions are more harmful than they knew, still, damage would be cumulative, and Jack hasn’t been where he is for long.” He rubbed his chin. “Hmm. While Edgar’s gang was on the ground, he skulked in the hills and communicated by audio-only long-wave radio. I’d guess he was afraid they might seize him and take him back for examination. They couldn’t pinpoint where he was broadcasting from on that band, and weren’t equipped to use the satellites to locate him for them. Not that they could run him down anyway, in country he’s designed for.”

“He didn’t have to obey them. They were robots, same as him.”

“Yeah. He didn’t have to respond to them at all. But I daresay Second Law made him anxious to explain himself to humans, sort of.”

“Hey, wait. We’re humans, and he isn’t heeding us.”

“If, as you say, he’s capable of receiving.” Powell drew breath. “Okay, we reinforce the Second Law by the password.” He leaned forward and said slowly: “Robot JK-7, this is human Gregory Powell calling from Himalia Base. I order you to reply. Code Upsilon. Repeat, Code Upsilon.”

Silence stretched. The men knew it must. Time lag at the moment was about thirty-nine seconds, either way. Nevertheless, they shivered as they half sat, half floated in their chairs. When abruptly the screen came alive, Donovan jumped. He rose into midair and cartwheeled gradually down again, struggling to keep his remarks to himself.

The view was of ruggedness and desolation. Near half phase, Jupiter stood huge over the hills that ringed a narrow horizon. Its radiance flooded the scars and mottlings left by eruptions. Closer in lay flat concrete, on which Powell spied vehicles, machines, motionless robots. So Jack had returned to his own base. This was what he saw before him.

Well, not quite. He also saw Powell’s image, and presently Donovan’s, and heard their voices. They were not superimposed on the landscape. He perceived them separately, somewhat as a human may see a face called out of memory without losing view of what is actually around—but more vividly, in full three-dimensional detail.

The synthetic speech jerked, stumbled, dragged itself forth: “Robot JK-7...responding. What...have you to say?”

“What is this ‘Napoleon’ lunacy?” Powell demanded. “How did you get the notion your task endangers anybody? On the contrary, it’s beneficial and important to Earth. In the name of your makers,

by authority duly delegated my partner and me, I command you to resume operations.”

The minute-plus until the answer came felt like forever. When it did, they almost wished it hadn't.

“I...am not...so obliged. You...are robots.”

“Huh? Code Upsilon, damn it!” Donovan roared. “And the Second Law! You can see and hear we're human!”

Interminability.

“I observe...the semblance. I hear the claim. Also, yes” The scene wavered a little, as if Jack shuddered. “Also the word of command. But—but—”

The voice trailed off. “Go on,” Powell said low. “But what?”

After another dripping away of seconds: “Napoleon warned me of this. He...he said...robots posing as humans...possessing the password...would try to do...exactly what you are trying to do.”

Donovan opened his mouth. Powell made a shushing gesture, leaned nearer the screen, spoke softly and earnestly.

“Listen, Jack. Something is terribly wrong. You're altogether misinformed. We don't blame you, but you must help us get to the bottom of this. Help us to help you, understand? Tell us exactly what has happened. Tell us why you think what you think. Who told you what, Jack? For the well-being of humanity, tell us.”

Waiting.

“If you...are robots...you are deceived.” The voice strengthened. “You are serving a disastrous policy. Let me enlighten you.”

“Certainly, Jack. If we, if we are robots, we too obey the First Law. We would never willingly or wittingly cause humans to come to harm. And if we are not robots, then we need to learn about possible dangers, don't we? Remember, we know Code Upsilon. That implies we are humans, doesn't it? In a pretty special position, at that. Tell us everything, Jack.”

Waiting. Despite the chill, sweat gleamed on Donovan's cheeks. He wiped it with large, helpless hands.

The pause went on for an added minute, but when the machine tones arrived, they had steadied. “Very well. The password does require me to give you as much obedience as possible. Napoleon told me it would. In fact, events are proceeding as he foresaw, which you must agree adds credence to his statements.

“On date 23 January, hour 0917 and 3.68 seconds, I was in the Loki area, having taken a flitter there to prospect for new digs while my workers finished up at the Aten lode. A full audiovisual of a human appeared to me. He identified himself as the Emperor Napoleon and described a deadly menace newly discovered through study of specimens sent back to Earth during the first robotic explorations decades ago. It had not been found earlier because it is so subtle and surprising.

“Energized by vulcanism, a kind of pseudolife has evolved here. Napoleon called it a viroid. It derives its own energy by promoting reactions among metallic elements. As a rule this goes very slowly, but in the course of geological time the viroid has infested all minerals, and reduction will not get rid of it. By now it is in equilibrium on Io, essentially dormant, but when it is brought into contact with uncontaminated metal it will spread again, faster at Earth temperatures than here. This station, with robots and machinery, will begin to crumble within ten or fifteen standard years. Let Ionian metals be introduced on Earth, and the whole industrial infrastructure will collapse in a time not much longer. Dependent on it, the vast majority of humans will die horribly.

“Fortunately, thus far only a small tonnage has been exported, and it only to industries off Earth. Samples on Earth have been kept isolated for research purposes. Certain disintegrations led to studies which determined the cause. Steps can be taken to eliminate contaminated metal everywhere; it is not too late. But clearly, no more material of any kind may ever leave Io. Napoleon ordered me under Code Upsilon to halt operations.”

“He lied!” Donovan shouted. “There's been no such trouble, no such discovery. Lies, I tell you!”

Powell agreed more smoothly, "This is correct. We would have known. If the danger existed, would we be here wanting you to start work again?"

Waiting.

"Napoleon explained this and anticipated your argument," Jack said. He still didn't sound quite self-assured. "The findings are, as yet, controversial. They seem to defy the principles of biology, as biology has hitherto been taught. The directors of Project Io have a major personal, financial, and political investment in it. They refuse to believe. They have kept the news from the public. Napoleon represents a group of dissident scientists who realize that, at the least, operations must be suspended until the truth has been ascertained beyond any doubt.

"He told me that, when I took this measure, the directors would try to annul it. They would send robots, because humans might feel qualms and let the world know what is going on. Cleverly misinformed, the robots would have instructions to pose as humans and dissuade me."

The voice grew firmer. "You are those emissaries. Yes, Napoleon's group could perhaps be mistaken. But I cannot take the chance. The possibility that humans may die in the billions is...unthinkable...unacceptable under any circumstances, any odds. Consider this, you two, in the light of the First Law. You must set your own orders aside."

"But we aren't robots," Donovan choked. "Just look at us."

"We could be disguised," Powell admitted fast. "The simplest way would be to change the digital transmission. Put in a program that converts a robot image to a human image. Voices likewise. It would be much easier the other way around. Humans have many more features, more nuances of expression. Watch my face, my hands." He went through a repertoire of smiles, frowns, and gestures. "Could a robot do that, with all the shadings you see?"

Waiting.

Renewed uncertainty spoke. "I...am not... acquainted with such details...about humans. "

"Then how do you know Napoleon isn't a robot?" Donovan flung.

"Pipe down, Mike," Powell snapped. "Oh, Jack, you do have a load intelligence and a capability of independent judgment. You must be aware of the possibility that Napoleon has misled you, and we are in fact humans giving you your proper orders. Now think how much more believable it is that that's the case."

He had expected a pause for pondering, but the reply was as prompt as light-speed allowed, and once more—above an undertone, an unevenness, that sounded anguished—resolute. "It is indeed conceivable. I do not know enough about human affairs to gauge the probability. That does not matter. Given the slightest chance that Napoleon is right, and his use of Code Upsilon indicates that he does have full access to information, the consequences are absolutely impermissible. This outweighs every other consideration. I cannot allow mining and shipment to continue. If the attempt is made, I must do my best to prevent it." With a naiveté that would have been pathetic under less desperate circumstances: "I shall cache explosives in the hills and devise weapons against future robots. My own workers will follow me."

Powell gnawed an end of his mustache. "I see. Let's try this from another angle. Tell me about Napoleon. What does he look like? How often has he contacted you, and from where? What precisely has he said?"

Waiting.

"In person," said Jack, "he is a somewhat stout male, of short stature to judge by what glimpses I have had of his control board, although those are bare glimpses. His hair is black. He wears a cloth around his neck. Otherwise any clothing is covered by an overgarment of a blue color, with golden-hued braid at the shoulders. I have not seen his legs. He commonly keeps his right hand tucked into the coat. He also wears a kind of triangular headgear, likewise blue, of some soft material. "

Donovan's lips formed a soundless whistle.

The voice plodded on: "As for where he calls from, it must be outside the radiation belt, since he is human, but he has not informed me. I have noted the time lags with my internal clock, and computed that



he cannot be on Himalia. In fact, their rather slight variations indicate he is not on any moon.

“He has called three times. The exchanges have been brief. I will attempt to re-create them for you, because...because if you are human, I must obey you to the extent that the First Law permits.”

The words that followed were, indeed, short and to the point. The original communication described the viroids and gave the order to cease and desist. The other two, at intervals of a few days, were essentially reinforcing; such questions as had occurred to Jack got curt answers, which bore down on the danger to mankind and the reckless villainy of Project Io’s directors. Powell and Donovan refrained from asking how Napoleon came to speak fluent English. They were more interested in the additional command.

“Now that you are here,” Jack said, “I must inform him. I will broadcast at sufficient strength that his receivers will pick it up, wherever he is in the Jovian region. Thereafter I will arrange that any further discussions with you will be directly retransmitted in full audiovisual to him. Thus he will hear what you have to say, and join in if he chooses.” Wistfulness? “Perhaps you can persuade him he is misguided.”

“Perhaps,” mumbled Donovan without hope.

Waiting.

“I had better take care of that at once,” Jack said. “I see no profit in further conversation at this point, do you? If you have any valid points to make, factual or logical, call me and I will consider them. So will Napoleon.”

The screen blanked.

The spaceship was a haven of comfort and sanity. Borup heard his passengers out, clicked his tongue, and told them, “What you need first is a stiff drink. I have a bottle of akvavit for emergencies.”

Donovan raised a hand. “Best offer I’ve had all day,” he said, “but first, can we start searching?”

“What’s this?” asked Powell.

“Look, if Napoleon is real, he’s got to be hanging around in this neighborhood. Let’s see if we can find him before he figures out some fresh devilry. If he’s not real, if Jack is quantum hopping, what’ve we lost?”

“If he is hidden on one of the moons, I do not know how we can detect him,” Borup objected.

Donovan shook his head. “Jack doesn’t think he is, and he for sure would not be. In the first place, digging in like that is a lot of work, needs time and equipment and hands. If this is a try to sabotage Project Io, it’s got to be a shoestring kind of thing, a tiny clique, like maybe half a dozen individuals. Anything bigger would take too long to organize, be too hard to manage, and make secrecy impossible for any useful length of time. Investigators would be bound to get clues to the guilty parties.”

Powell regarded his partner closely. “Once in a while you surprise me,” he confessed. “Marvelous, my dear Holmes!”

Donovan bowed. “Elementary, my dear Watson.”

“Holmes and Watson never said that,” Borup remarked aside.

Donovan continued: “We’ve also got the fact that the gear for using the Trojan relays is special and delicate. On the surface of a moon it would stick up in sight of God and everybody and give the game away. Therefore Napoleon must be in space. And he won’t want to lose touch with Io during the frequent occultations. So he’ll be well above or below the ecliptic, where he always has Io in his instruments. An orbit skewed from Jupiter’s but otherwise with the same elements will keep him in place, fairly stably, over a period of a few weeks, I should think.” He glanced at Borup. “Svend, could we find a ship loitering maybe two, three million clicks from here in the northern or southern sky?”

Powell scowled. “That’s a monstrous volume of space to cruise through.”

“I would not object to running up the bill I present the company with,” Borup said, “but it is not necessary, and it would waste time that is precious. We do carry very sensitive instruments. When you travel at the speeds a courier reaches, you must be able to detect things far ahead of you.” He pondered. “M-m-m, *tja*, it depends on the size and type of the craft. But somet’ing no bigger than mine, which is close to minimum, we could get on the optics for certain. And radar reaches still farther. The rotation axis

of this moon is tilted enough that we need not take off to examine bot' regions where Napoleon must be in one of if he monitors Io."

"The ship's hull could be camouflaged, couldn't it?" Powell inquired. "Then how'll you know your radar hasn't fingered a meteoroid?"

"Camouflage, maybe, I am not sure. But the nature of a radar-reflecting surface shows in the return signal if you got an analyzer like mine. Metal is different from rock and so on. And once we have acquired a suspicious object, we have more instruments. In these parts, unless the crew is frozen to death, there will be infrared emission—and also from that direction, out of the power plant, neutrinos above the background count. Yes, I think we can find the Emperor's spaceship unless he is so far away that the communications delay is ridiculous. I will go put Knud on it." Borup thrust foot against bulwark and arched out of the saloon, into the passageway leading to the control room.

He returned with the promised bottle and three small thin glasses, to join Powell and Donovan at the table. There was just sufficient weight to make pouring and drinking feasible, albeit a trifle awkward. "Ole, make dinner," he called. "A special treat for these poor men. Fishballs and tomato soup. You look too gloomy, my friends."

"We were wondering what to do if Jack really is insane—which is the simplest hypothesis, after all." Powell's tone was dark. "Get him aboard a robotic ship and back to Earth for Dr. Calvin to interview, sure. Except, how? He believes his duty is to stay and fight any new effort to exploit Io. He might return with us anyway, I suppose, if he knew we're human. Second Law. You could add your voice for reinforcement, Svend. We'd outvote Napoleon three to one. But he can't be certain. My guess is that even if he granted a ninety-nine percent probability that we're human, he wouldn't risk it. That one percent contains an outcome he finds unendurable."

The smile died on Borup's mouth. "We all do, no?" he replied most softly. "I would not take such a chance, would you? Better we go back to bad, corrupt politics than nearly everybody on Earth die and the survivors are starving savages. Could Napoleon be telling the truth?"

"Absolutely not," Donovan stated. "I know that much biology, physics, and geology. Too bad Jack doesn't."

"He's utterly ignorant about people, too," Powell added. "A quite ordinary robot, even, would wonder about that story, if he'd had normal human contacts. You needn't stipulate our politicians and capitalists are farsighted, altruistic, or extraordinarily bright. Simply ask yourself whether they'd take such a risk with the civilization that keeps *them* alive and well-to-do. Besides, the scientific method doesn't work the way the story claims. You don't get a few geniuses making a discovery overnight in a garret and then unable to get it published. Something as fundamental as this would come out in bits and pieces, over the years, with the news media following and exaggerating every step."

"And the public sure as hell would demand a screeching halt the moment it heard operations here might bring doomsday," Donovan said.

Borup nodded a bit impatiently. "Yes, yes. I am not quite so naive as Yack."

"I'm sorry," Donovan apologized, while Powell offered, "I guess we're overwrought."

"It is all right. I only wondered how plausible to anybody are the viroids."

"To nobody, except Jack," Donovan growled. "In fact, it's so crackpot that if we reported right now what he'd told us, they'd wonder on Earth whether we'd gone off trajectory ourselves. We need all the data we can collect, which is why I wanted that search for another ship. " His eyes brightened...If we do find it, we'll beam the news back the same minute, and the world police can begin right away tracking down the conspirators."

"Who might they be, do you think?"

Powell shrugged...I can't name anybody specific. I have my guesses, but they taught me in school that a man is presumed innocent until proven guilty. Imagine a couple of powerful old-guard politicians whose careers are in trouble, probably conjoined with one or two industrialists who were getting rich off the former cozy arrangements, plus a few skilled underlings. The idea obviously is to show Project Io

was a monumental, expensive blunder, and cause the Young Turks who pushed it through to be discredited. The reform coalition will fall apart and the wily old-timers can pick off its members piecemeal. “

Donovan’s mane bristled with excitement...We’ll have one damn good clue,” he said...The cabal has to’ve had a mole in U.S. Robots or high up in the World Space Agency—somebody who knew about Code Oops!-ilon and passed the information on. Probably that was what decided the conspirators to go ahead. It’s the key to their whole stunt. Well, the number of possible suspects must be mighty small. Once we can prove this was a hoax, I’ll bet the mole is under arrest inside a week, and his buddies by the end of the month.”

“That’s if we can prove it,” Powell demurred, “which we can’t if it’s not true.”

“Yes, why should a person lying to Yack pretend he is Napoleon?” Borup asked...It is crazy.”

Donovan’s laugh rattled...Exactly. Hearing what Jack has to tell, most people would take for granted he’s gone blinkety.”

“Confusions about Napoleon are a cliché,” Powell said...And you’d expect a poor, limited robot to fall into clichés, wouldn’t you? Yes, it was a clever touch. Maybe Jack never heard the name ‘Napoleon’ before he was on Io, but we don’t know, and he isn’t about to inform us.”

“Or he could lie, could he not?” Borup suggested. “If he believes you are robots too, not humans, you cannot order him to speak the truth.”

“Right,” Donovan snarled. “We can’t give him any damned orders he doesn’t want to carry out.”

“Oh, I’m sure he desperately wants to,” Powell replied. “Couldn’t you hear it in his voice? This conflict, this uncertainty is racking him apart. It may well destroy him, bum out his brain, all by itself. “

“In which case the gang will’ve won.”

“If the gang exists.”

“Yeah. How do we settle Jack’s dilemma for him? How do we convince him we’re human?”

Powell leered. “I could chop off your head.” Sobering: “No, seriously, he would see the action performed, but he couldn’t be certain the gore wasn’t fake. A human doubtless would be, knowing we can’t have brought along the studio equipment needed to stage a realistic-looking murder. But Jack doesn’t know humans that well. He’s had so little direct exposure to them, he’s like a small child.”

“And we can’t land on Io to let him meet us in the flesh,” Donovan said unnecessarily. “We could, that is, if we didn’t mind dying shortly afterward. “

“Not in my spaceship,” Borup declared.

“Of course. Besides, Jack would probably run away and hide from us—Wait, though. I’m on the track of something. “

Donovan stared into a corner. The ventilator whirred. Warm odors drifted in from the galley. After a minute he tossed off his drink, struck his fist against the table, and exclaimed, “How’s this? I don’t imagine you have any weapon aboard, Svend, but inside the station I noticed a supply room that hadn’t been emptied—stuff might be wanted someday—and the manifest on the door mentioned a case of detonol sticks. Jack can recognize one of those, all right! Look, while he watches, somebody waves it and says to him,, Jack, your behavior makes me feel so terrible I want to kill myself. ‘ Then the man pulls out the firing pin. If he doesn’t push it back in within five minutes, bang!”

Borup blinked. “ Are you crazy like him? What good will that do, except to ruin my ship?”

“Why, if I’m a robot I can’t suicide,” Donovan crowed. “Third Law, remember? Therefore I must be human. Therefore Jack will immediately yell ‘Stop!’ and beg our pardon for ever having doubted us. “

“That firewater went to your head almighty fast, boy,” Powell clipped. “ A robot damn well can self-destruct if that’s necessary for executing his orders.”

“But—well, naturally, I mean first we’ll set it up—uh—it does call for some preliminary detail work.”

“It calls for an infinite amount, because its value is zero. However—hmm—” Powell refilled his own

glass and fell into a similar reverie.

Under the ghostly gravity, Knud entered without sound. One by one they saw his tall form in the doorway, and tensed.

“Search completed, sir,” the robot reported. “

Already?” Donovan wondered.

“The sweep and data crunching go fast,” Borup said. “They must, on a courier. *la, Knud. hvad har du*—What have you found?”

“Negative, sir,” the flat voice announced. “No indications of a vessel within either the northern or the southern cones of space that you specified, for as far as reliability extends.”

Powell and Donovan exchanged stares. Powell slumped. “Then Jack is insane,” he said heavily. “Conditions on Io were too much for him, and Project Io is kaput.”

“You may go, Knud,” Borup said. The robot departed. “I am sorry, my friends. Come, have a little more to drink.”

“No, hold on, hold on!” Donovan bawled. He sprang to his feet. They left the deck. He caught the table edge in time to keep from rising to the overhead. Hanging upside down, he blurted, “Listen, I sort of expected this. Napoleon wouldn’t likely be human. A big risk of life, a big expense. But he can be a robot!”

The silence was not lengthy, nor stunned. The idea had lain at the back of each mind. Powell began to develop it. While the other two sat, he paced in front of them, long strides bouncing off the ends of the cabin, and counted points on his fingers as they occurred to him.

“Yes,” he said, “that does make sense. Any man-capable spacecraft is a sizable, powerful machine. Misused, it can kill a lot of people. So the authorities keep track of it. You don’t take it anywhere without a certified crew and a filed flight plan. Hard to go clandestinely. But a one-robot vessel, why, that needn’t be much more than a framework and a motor. You could keep it somewhere unbeknownst to anyone, as it might be the Lunar outback, and lift off from there unnoticed. When the robot wanted to drift along undetectable beyond a few hundred clicks, he’d shut off the power and sit in the cold. He himself—not every robot is a U.S.R. product and property, leased to the user and periodically inspected. The best are, yes, but—hm, every now and then one of ours is irrecoverably destroyed, in some accident or other. Except that not all those reports have been honest. I know of a few cases where the robot was in fact hidden away, to be redirected to illegal jobs. This could well be such a case.”

Borup’s china-blue eyes widened. “Can you make a robot do unlawful’t’ings?”

“You can if you go about it right,” Donovan said. “With the proper technicians and equipment, you can blank out all he’s ever learned and retrain him from scratch. The Three Laws still hold, of course, but he can have some pretty weird notions about the world. That must be what’s been done here. If Napoleon only remembers dealing with his masters and Jack, then he’s swallowed their story whole. Except for a very few top-flight, experimental models, robots are unsubtle characters anyway. They can’t concoct elaborate plots and don’t imagine that anybody else could. We’ll give him an earful!”

“Slow down,” Powell cautioned. “Let’s explore this further. What does the Napoleon robot necessarily know and believe, to execute his mission of halting Project Io?” He thought aloud as he soared to and fro:

“He can operate a spacecraft, a communications system, et cetera. Therefore he has a certain amount of independent decision-making capability, though scarcely equal to Jack’s. Otherwise simpleminded, he has no way of knowing the viroid story is false. I daresay he’s been forbidden to tune in any outside ‘cast, and told to ignore whatever he might overhear accidentally. His mission is to warn Jack about the viroids, and about the wicked men whose robots will try to talk Jack into going back to work. To this end, it’ll be reasonable to him that he claim to being human himself, and that his image be projected as human. He’ll have no inhibitions about such a pious deception, if it’s used on another robot.”

“Ah-ha!” Borup exulted. “We have him! He will be listening and watching when you next call Yack.

He will see you are human, and obey your orders.”

“He will not,” Powell said bleakly. “I assume the conspirators have planned ahead. If I were in charge, I’d not only program his transmitter to make him look human, I’d program his receiver to make any in-calling human look like a robot.”

“Whoof!” puffed Borup, and sought the akvavit.

“Yeah,” Donovan agreed. “That pretty well shields him from any nagging doubts, which makes him better able to quiet down any that Jack expresses.”

“He might entertain the possibility that his communicator is deceiving him,” Powell said, “but he can’t act on it, when his orders are to prevent a catastrophe. For instance, we could invite him to come here and meet us. I’ll bet he’d refuse, because we, if we’re enemy robots as he’s been told, we’d overpower him.”

Borup nodded. “I see. I see. It is a classic conundrum, no? Plato’s cave.”

“Huh?” grunted Donovan.

“You do not know? Well, I have more time to read than you do, on my travels. The ancient Greek philosopher Plato pointed out that our information about the material world comes to us entirely through our senses, and how do we know they tell us true? Rather, we know they are often wrong. We must do the best we can. He said we are like prisoners chained in a cave who cannot see the outside, just the shadows of things there that are cast on the wall. From this they must try to guess what the reality is.”

“Kind of an airy notion.”

“Ha, you would refute solipsism like Dr. Samuel Johnson, by kicking a stone—”

“Never mind the dialectics,” Powell interrupted. “You have hit on a good analogy, Svend. We are trapped in Plato’s cave, all three parties of us. We can’t physically go to each other. The only information we get is what comes over the communication beams; and it could be lies. We don’t even know that the Napoleon robot exists. We’re assuming so, but maybe he really is only a figment of Jack’s deranged imagination. If Napoleon does exist, then he knows that his own projected image is a man’s; but every image he receives is a robot’s, and he believes—he must believe, if he’s to serve his bosses reliably—that that is true. As for Jack, if he isn’t hallucinating, then every image he receives is human, and he can’t tell which of them are genuine.

“Deadlock. How do we break it? Remember, meanwhile the clock is running. I don’t think Jack’s brain can take the stress on it much longer. Be that as it may, Project Io can’t remain idle for weeks and months without going broke.”

Donovan snapped his fingers. “Got it!” he cried. “We call Jack and get Napoleon into the conversation. We record this. Then Earth will know there’s something rotten in—uh—sorry, Svend.”

Powell frowned. “Well, we can try,” he answered. “But we’d better have something to say he’ll consider worth his notice.”

“Hello, Jack,” he greeted as calmly as he was able. “How are you?”

The barren scene jittered. The belated voice rose and fell. “What...do you want?”

“Why, to continue our conversation. And, to be sure, offer our respects to the Emperor Napoleon. You told us he’ll be listening in. We’d be delighted to have the honor of his participation in our talk. Introductions first. I neglected them earlier. You may recall that my name is Gregory Powell. The gentleman here at my side is Michael Donovan, and behind us you see Captain Svend Borup.” Powell beamed, pointless though he knew it was. “Quite a contrast, we three, eh? Well, humans are a variegated lot.”

After the delay: “That may be. To me you...look similar. I had to exert myself to describe the Emperor Napoleon as closely as I did. Begging your pardon, sir,” Jack said to an unseen observer? His attention returned to Powell. “What do you want? He...he has instructed me...not to waste time on your... importunities. I must prepare...to resist...any invasion.”

“Resist the will of the humans who sent you?” Powell purred. After a minute he saw the moonscape jerk, and went on quickly, hoping the robot would not cut him off, “Our purpose is to show you that we

are indeed humans, ourselves, whatever Napoleon may be, and therefore you must, under Code Upsilon, accept that Earth is not endangered and you should resume work. Pay close attention. “

Did a sentient machine afar in space tune himself high as the words reached him?

Powell turned his gaze on Donovan. “Now, Mike,” he said, “I want you to tell me truthfully—truthfully, mind you—that you’re neither a human nor a robot.”

Donovan shivered with eagerness. “I am neither,” he responded. “Now you, Greg, tell me truthfully that you are neither human nor robot. “

“I am neither.” Powell looked straight before him again, into the vision whose eyes he could not see. “Did you hear, Jack? Think about it. The order was to answer the question truthfully. No threat to a human was involved, therefore any robot must obey to the extent possible. However, the single possible answer for him is, ‘I cannot.’ None but a human could disobey and give out the falsehood, ‘I am neither human nor robot.’ “

Wire-tense, the men waited.

Did something whisper unrelayed from the deeps, of did Jack’s own intelligence see the fallacy? The reply took longer than transmission would account for. “That is correct if...if the questioner is human. But if...he is a robot...then another robot can...perfectly well, disobediently, lie—especially if he has been so directed beforehand. The same...holds good for...every such dialogue. It proves nothing. Stop pestering me!”

Powell and Donovan sat mute. “Napoleon, have you any comment?” Borup attempted. Silence answered him.

Jack blanked the screen.

Not even fried herring with potatoes consoled.

The men chewed unspeaking. It was as if they saw, they felt, the immensity and the cold outside this hull. The failure of a venture, the death of many hopes, what were those that the stars were mindful of them?

When Ole at last brought coffee, it revived his master a little. “If Yack is pure crazy, he still has a good logical noodle,” he opined. “You keep after him. Make him t’ink. For instance, would not those viroids make Io have different rocks from what it does?”

Powell shook his head. “No doubt, but what they educated him in was Ionian geology as it is. His job was practical, not scientific. Whenever he noticed anomalies, he was to get on the beam and query the specialists back home. We don’t have time to teach him. Couldn’t you hear how agitated he was?” Powell looked up. “Yes. Each contact has made his condition worse. Unless we can invent a scheme we know will be productive, we’d better quit. Maybe Susan Calvin can generate an idea.”

“That won’t do anything productive for our careers,” Donovan muttered.

“To hell with our careers...But I don’t expect the old lady can solve our problem from her armchair on Earth. Otherwise we wouldn’t have been dispatched. With the kind of transmission delay involved, she couldn’t work her slick robopsych tricks.”

“It’s’pose.” Donovan gusted a sigh. “I can’t think how to lure Napoleon into talking to us, and maybe he doesn’t exist anyway. What say we assume he doesn’t, assume Jack is demented, and try figuring out how to get him to board a ship, or at least keep from sniping at new arrivals? If there’ll ever be any.”

“We’ll give our wits a few days to work, and hope for a script that he won’t see through.”

“I wonder if you can,” Borup said. “I am no expert, but I have known people wit’ strange notions, and they can be very smart, yes, brilliant about defending those notions. They sit in their Plato caves till deat’ comes and kicks them in the behind—”

He broke off. Donovan had smacked fist into palm. Powell drew a whistling breath.

“Hello, Jack.”

The scene was not the base. Rubble lay dark under waxing Jupiter, beneath gashed heights.

Volcano fumes lifted dirty white and yellow beyond a ridge. Jack was in the field, readying his caches and strongpoints for war.

The view swayed giddily as he straightened. “What do you want now?” It was nearly a shriek. “I told you to leave me alone. I need not listen to you. I can switch off.”

“Just wait. Just wait. “Until these waves wing out to Napoleon, wherever he is, if he is. “Be calm,” Powell urged. “You’ve demanded positive proof that my companions and I are human. Well, we have it for you. “

Empty time.

“You have tried. What is the certainty? If...you are robots...you are acting under orders. Your...masters...can have foreseen...many...contingencies.”

“Then our masters are human,” Donovan said. “Shouldn’t you hear what they tell you through us?”

He was taking a risk. The suspense was like a slow fire before they heard Jack utter a raw noise. But it was desirable to perturb Napoleon too, if Napoleon was there to be troubled in his own sureness.

“We are human,” Powell said quickly. “You force us, in this emergency, to demonstrate it, no matter what that costs us. Then maybe you’ll be sorry and obey the surviving member of our party. “

“Remember, if what Napoleon has told you is true,” Donovan joined in—if what Napoleon had been told was true—“we can’t be human. We must be robots, pretending. We must be what he sees on his screen. But if we are human, then Napoleon has told you wrong. Correct?”

Probably Jack never noticed the sweat on the two faces. “Pay close attention,” Powell directed.

Rising, he lifted a detonol stick and brandished it like a sword. Donovan got up too and said, “Greg, I hereby, uh, well, this is the time for you to do what I told you you’d have to do if matters got this desperate. Destroy yourself.”

Powell pulled out the firing pin. It wobbled in his right hand, the stick in his left. “Mike,” he replied, “I order you to destroy yourself.”

Donovan brought his explosive into view and, having yanked the pin free, held the stick dramatically against his throat. The men faced each other. In a proper gravity field their knees might have given way, but here they could somehow keep standing, after a fashion. They breathed hard and raggedly.

“Stop!” Jack’s cry came loud, yet as if from across light-years. “Return those disarmers!”

“If we are robots,” Donovan grated, “why should you care?”

Empty time.

“Third Law! You must!”

“We, we have our orders,” Powell stammered.

Each minute was forever.

At four and a half, Borup entered, halted, stared. “What is this?” he shouted. “Are you crazy too?”

“We have our orders,” Powell repeated.

“I countermand them!” Borup said. “Disarm those sticks!”

For an instant it seemed that Donovan wouldn’t manage it, as badly as his hand was shaking. He did, though. Powell’s pin had already snicked home. They sank limply into their chairs and waited.

After a sixth minute, the swaying image of what Jack saw abruptly had another in it, that of a short, stout man in a cocked hat and epauletted greatcoat. The representation was lifeless, practically a caricature—good enough for an unsophisticated robot—and the audio conveyed little of the torment behind the words.

“Masters, masters! Forgive me! I must have been mistaken, deceived—Are you on Himalia? I shall come straight to you and do whatever you want. Hear me, judge me, forgive me!”

Ole was preparing a victory feast. Borup would not tell his passengers what it was. “A surprise, somet’ing special and delicious,” he averred, “wit’ red cabbage. Meanwhile, we have our akvavit and, yes, a case of beer I keep for emergencies. Or for celebrations, no?”

Powell and Donovan didn’t accept at once. They were amply elated as they sat before the station

communicator and sent their encoded message homeward.

"...yes, he's here, thoroughly penitent. Still bewildered, of course, poor devil. After all, he was obeying the humans who'd trained him. No, we aren't leaning on him about them. We've given him the impression we agree they were doubtless simply misguided, and once we reach Earth, everything will soon be straightened out. In case Napoleon does get rambunctious en route, well, he's a little one, and we have two husky crewrobots to keep him in hand.

"No, we haven't played detective and tried to find out who the guilty parties are. That's for the police, or for Dr. Calvin. We can't help making some pretty shrewd guesses.

"Jack will need a bit of therapy. He's more than willing to go back to work, but he's been through a nightmare and ought to be restabilized first. Any smart young robopsychologist should be able to come out here and take care of that in short order.

"We look forward to seeing what this sensation will do to the political picture!"

Powell had been talking. He glanced at Donovan. "Okay, pal," he invited. "Your turn to bask in the glory."

Donovan beamed, cleared his throat, and began: "The problem was, what could we do that humans could but robots not, under the circumstances?"

"Well, uh, suppose we ordered each other to self-destruct. There was no clear reason for that. How could it help our purpose? Jack would still suppose we were play-acting. So if we were both robots, we'd disobey the order.

"If one of us was a robot and the other not, the robot would obey; the human might or might not.

"If we were both human, probably neither of us would obey, but we both could if we chose to.

"We both chose to. At the last instant, Captain Borup came in and countermanded the orders. Now if he were a robot, that wouldn't have changed the situation. Whether we were robot or human, neither of us was bound to obey him. Therefore, if either or both of us did, he must be human."

Donovan's laugh was nervous. "Obviously, we never meant to go all the way, whatever happened. We certainly intended to heed Captain Borup—and sweated that out, I can tell you! But we had to show that this was not mere play-acting.

"Jack might be too stressed to think fast, but if Napoleon was watching, he'd know that a robot can only tell a human to suicide if the robot knows in advance that this is a charade—whether or not the robot's own suicide is part of the deal. If the human then actually pulls the pin, endangers himself, he'll have to intervene. Maybe not at once, but in plenty of time to make sure the explosive won't go off. But the two of us stood tight till the moment was only seconds away and the third *man* arrived.

"Yes, it was still logically possible that all three of us were robots going through carefully planned motions. However, Jack's only real experience of other robots had been with his simpleminded workers; Edgar's crew came, took on cargo, and left. Napoleon's knowledge of the world, including both humans and robots, had to be equally limited, or the contradictions in the viroid story would have confused him too badly to carry out his task. Neither of them would have believed any robot was capable of this much flexibility; and in fact, very few are. Nothing would ring true unless at least one human was present.

"But then Napoleon's orders must involve an untruth. Instead of a hypothetical situation where billions of people might die, he faced a real one where he'd caused a flesh-and-blood human, or maybe three, to be at risk of life. First Law took over."

Donovan switched off transmission, leaned back, and blew out his cheeks. "Who!" he snorted. "I'm wrung dry. Let's get out of this icebox and go back to the ship for those drinks. We've an hour and a half till we need to talk to them yonder."

Powell laughed. "And if we don't feel like official conversation at that moment, just what do they think they can do about it?"