

Aug. 1959 · 35 Cents

Astounding **SCIENCE FICTION**



THE ALIENS BY MURRAY LEINSTER

The Project Gutenberg eBook of The Aliens, by Murray Leinster

This eBook is for the use of anyone anywhere at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.org

Title: The Aliens

Author: Murray Leinster

Illustrator: van Dongen

Release Date: January 1, 2008 [EBook #24104]

Language: English

*** START OF THIS PROJECT GUTENBERG EBOOK THE ALIENS ***

Produced by Greg Weeks, Bruce Albrecht, Louise Pryor and the Online Distributed Proofreading Team at <http://www.pgdp.net>

Transcriber's note

This etext was produced from Astounding Science Fiction August 1959. Extensive research did not uncover any evidence that the U.S. copyright on this publication was renewed.

THE ALIENS

BY MURRAY LEINSTER

Illustrated by van
Dongen

[Pg 9] *The human race was expanding through the galaxy ... and so, they knew, were the Aliens. When two expanding empires meet ... war is inevitable. Or is it ...?*

[Pg 10] At 04 hours 10 minutes, ship time, the *Niccola* was well inside the Theta Gisol solar system. She had previously secured excellent evidence that this was not the home of the Plumie civilization. There was no tuned radiation. There was no evidence of interplanetary travel—rockets would be more than obvious, and a magnetronic drive had a highly characteristic radiation-pattern—so the real purpose of the *Niccola*'s voyage would not be accomplished here. She wouldn't find out where Plumies came from.

There might, though, be one or more of those singular, conical, hollow-topped cairns sheltering silicon-bronze plates, which constituted the evidence that Plumies existed. The *Niccola* went sunward toward the inner planets to see. Such cairns had been found on conspicuous landmarks on oxygen-type planets over a

range of some twelve hundred light-years. By the vegetation about them, some were a century old. On the same evidence, others had been erected only months or weeks or even days before a human Space Survey ship arrived to discover them. And the situation was unpromising. It wasn't likely that the galaxy was big enough to hold two races of rational beings capable of space travel. Back on ancient Earth, a planet had been too small to hold two races with tools and fire. Historically, that problem was settled when *Homo sapiens* exterminated *Homo neanderthalis*. It appeared that the same situation had arisen in space. There were humans, and there were Plumies. Both had interstellar ships. To humans, the fact was alarming. The need for knowledge, and the danger that Plumies might know more first, and thereby be able to exterminate humanity, was appalling.

Therefore the *Niccola*. She drove on sunward. She had left one frozen outer planet far behind. She had crossed the orbits of three others. The last of these was a gas giant with innumerable moonlets revolving about it. It was now some thirty millions of miles back and twenty to one side. The sun, ahead, flared and flamed in emptiness against that expanse of tinted stars.

Jon Baird worked steadily in the *Niccola's* radar room. He was one of those who hoped that the Plumies would not prove to be the natural enemies of mankind. Now, it looked like this ship wouldn't find out in this solar system. There were plenty of other ships on the hunt. From here on, it looked like routine to the next unvisited family of planets. But meanwhile he worked. Opposite him, Diane Holt worked as steadily, her dark head bent intently over a radar graph in formation. The immediate job was the completion of a map of the meteor swarms following cometary orbits about this sun. They interlaced emptiness with hazards to navigation, and nobody would try to drive through a solar system without such a map.

Elsewhere in the ship, everything was normal. The engine room was a place of

stillness and peace, save for [Pg 11] the almost inaudible hum of the drive, running at half a million Gauss flux-density. The skipper did whatever skippers do when they are invisible to their subordinates. The weapons officer, Taine, thought appropriate thoughts. In the navigation room the second officer conscientiously glanced at each separate instrument at least once in each five minutes, and then carefully surveyed all the screens showing space outside the ship. The stewards disposed of the debris of the last meal, and began to get ready for the next. In the crew's quarters, those off duty read or worked at scrimshaw, or simply and contentedly loafed.

Diane handed over the transparent radar graph, to be fitted into the three-dimensional map in the making.

"There's a lump of stuff here," she said interestedly. "It could be the comet that once followed this orbit, now so old it's lost all its gases and isn't a comet any longer."



At this instant, which was 04 hours 25 minutes ship time, the alarm-bell rang. It clanged stridently over Baird's head, repeater-gongs sounded all through the ship, and there was a scurrying and a closing of doors. The alarm gong could mean only one thing. It made one's breath come faster or one's hair stand on end, according to temperament.

The skipper's face appeared on the direct-line screen from the navigation room.

"*Plumies?*" he demanded harshly. "*Mr. Baird! Plumies?*"

Baird's hands were already flipping switches and plugging the radar room apparatus into a new setup.

"There's a contact, sir," he said curtly. "No. There was a contact. It's broken

now. Something detected us. We picked up a radar pulse. One.”

The word “one” meant much. A radar system that could get adequate information from a single pulse was not the work of amateurs. It was the product of a very highly developed technology. Setting all equipment to full-globular scanning, Baird felt a certain crawling sensation at the back of his neck. He’d been mapping within a narrow range above and below the line of this system’s ecliptic. A lot could have happened outside the area he’d had under long-distance scanning.

But seconds passed. They seemed like years. The all-globe scanning covered every direction out from the *Niccola*. Nothing appeared which had not been reported before. The gas-giant planet far behind, and the only inner one on this side of the sun, would return their pulses only after minutes. Meanwhile the radars reported very faintly, but they only repeated previous reports.

“No new object within half a million miles,” said Baird, after a suitable interval. Presently he added: “Nothing new within three-quarter million miles.” Then: “Nothing new within a million miles ...”

The skipper said bitingly:

“Then you’d better check on objects that are not new!” He turned aside, and his voice came more faintly as he spoke into another microphone. *“Mr. [Pg 12] Taine! Arm all rockets and have your tube crews stand by in combat readiness! Engine room! Prepare drive for emergency maneuvers! Damage-control parties, put on pressure suits and take combat posts with equipment!”* His voice rose again in volume. *“Mr. Baird! How about observed objects?”*

Diane murmured. Baird said briefly:

“Only one suspicious object, sir—and that shouldn’t be suspicious. We are sending an information-beam at something we’d classed as a burned-out comet.

Pulse going out now, sir.”

Diane had the distant-information transmitter aimed at what she’d said might be a dead comet. Baird pressed the button. An extraordinary complex of information-seeking frequencies and forms sprang into being and leaped across emptiness. There were microwaves of strictly standard amplitude, for measurement-standards. There were frequencies of other values, which would be selectively absorbed by this material and that. There were laterally and circularly polarized beams. When they bounced back, they would bring a surprising amount of information.

They returned. They did bring back news. The thing that had registered as a larger lump in a meteor-swarm was not a meteor at all. It returned four different frequencies with a relative-intensity pattern which said that they’d been reflected by bronze—probably silicon bronze. The polarized beams came back depolarized, of course, but with phase-changes which said the reflector had a rounded, regular form. There was a smooth hull of silicon bronze out yonder. There was other data.

“It will be a Plumie ship, sir,” said Baird very steadily. “At a guess, they picked up our mapping beam and shot a single pulse at us to find out who and what we were. For another guess, by now they’ve picked up and analyzed our information-beam and know what we’ve found out about them.”

The skipper scowled.

“How many of them?” he demanded. *“Have we run into a fleet?”*

“I’ll check, sir,” said Baird. “We picked up no tuned radiation from outer space, sir, but it could be that they picked us up when we came out of overdrive and stopped all their transmissions until they had us in a trap.”

“Find out how many there are!” barked the skipper. *“Make it quick! Report*

additional data instantly!”

His screen clicked off. Diane, more than a little pale, worked swiftly to plug the radar-room equipment into a highly specialized pattern. The *Niccola* was very well equipped, radar-wise. She'd been a type G8 Survey ship, and on her last stay in port she'd been rebuilt especially to hunt for and make contact with Plumies. Since the discovery of their existence, that was the most urgent business of the Space Survey. It might well be the most important business of the human race—on which its survival or destruction would depend. Other remodeled ships had gone out before the *Niccola*, and others would follow until the problem was solved. Meanwhile the *Niccola*'s twenty-four rocket [Pg 13] tubes and stepped-up drive and computer-type radar system equipped her for Plumie-hunting as well as any human ship could be. Still, if she'd been lured deep into the home system of the Plumies, the prospects were not good.



The new setup began its operation, instantly the last contact closed. The three-dimensional map served as a matrix to control it. The information-beam projector swung and flung out its bundle of oscillations. It swung and flashed, and swung and flashed. It had to examine every relatively nearby object for a constitution of silicon bronze and a rounded shape. The nearest objects had to be examined first. Speed was essential. But three-dimensional scanning takes time, even at some hundreds of pulses per minute.

Nevertheless, the information came in. No other silicon-bronze object within a quarter-million miles. Within half a million. A million. A million and a half. Two million ...

Baird called the navigation room.

“Looks like a single Plumie ship, sir,” he reported. “At least there’s one ship

which is nearest by a very long way.”

“*Hah!*” grunted the skipper. “*Then we’ll pay him a visit. Keep an open line, Mr. Baird!*” His voice changed. “*Mr. Taine! Report here at once to plan tactics!*”

Baird shook his head, to himself. The *Niccola’s* orders were to make contact without discovery, if such a thing were possible. The ideal would be a Plumie ship or the Plumie civilization itself, located and subject to complete and overwhelming envelopment by human ships—before the Plumies knew they’d been discovered. And this would be the human ideal because humans have always had to consider that a stranger might be hostile, until he’d proven otherwise.

Such a viewpoint would not be optimism, but caution. Yet caution was necessary. It was because the Survey brass felt the need to prepare for every unfavorable eventuality that Taine had been chosen as weapons officer of the *Niccola*. His choice had been deliberate, because he was a xenophobe. He had been a problem personality all his life. He had a seemingly congenital fear and hatred of strangers—which in mild cases is common enough, but Taine could not be cured without a complete breakdown of personality. He could not serve on a ship with a multiracial crew, because he was invincibly suspicious of and hostile to all but his own small breed. Yet he seemed ideal for weapons officer on the *Niccola*, provided he never commanded the ship. Because *if* the Plumies were hostile, a well-adjusted, normal man would never think as much like them as a Taine. He was capable of the kind of thinking Plumies might practice, if they were xenophobes themselves.

But to Baird, so extreme a precaution as a known psychopathic condition in an officer was less than wholly justified. It was by no means certain that the Plumies would instinctively be hostile. Suspicious, yes. Cautious, [Pg 14] certainly. But the only fact known about the Plumie civilization came from the cairns and silicon-bronze inscribed tablets they’d left on oxygen-type worlds over a twelve-

hundred-light-year range in space, and the only thing to be deduced about the Plumies themselves came from the decorative, formalized symbols like feathery plumes which were found on all their bronze tablets. The name “Plumies” came from that symbol.

Now, though, Taine was called to the navigation room to confer on tactics. The *Niccola* swerved and drove toward the object Baird identified as a Plumie ship. This was at 05 hours 10 minutes ship time. The human ship had a definite velocity sunward, of course. The Plumie ship had been concealed by the meteor swarm of a totally unknown comet. It was an excellent way to avoid observation. On the other hand, the *Niccola* had been mapping, which was bound to attract attention. Now each ship knew of the other’s existence. Since the *Niccola* had been detected, she had to carry out orders and attempt a contact to gather information.



Baird verified that the *Niccola*’s course was exact for interception at her full-drive speed. He said in a flat voice:

“I wonder how the Plumies will interpret this change of course? They know we’re aware they’re not a meteorite. But charging at them without even trying to communicate could look ominous. We could be stupid, or too arrogant to think of anything but a fight.” He pressed the skipper’s call and said evenly: “Sir, I request permission to attempt to communicate with the Plumie ship. We’re ordered to try to make friends if we know we’ve been spotted.”

Taine had evidently just reached the navigation room. His voice snapped from the speaker:

“I advise against that, sir! No use letting them guess our level of technology!”

Baird said coldly:

“They’ve a good idea already. We beamed them for data.”

There was silence, with only the very faint humming sound which was natural in the ship in motion. It would be deadly to the nerves if there were absolute silence. The skipper grumbled:

“Requests and advice! Dammit! Mr. Baird, you might wait for orders! But I was about to ask you to try to make contact through signals. Do so.”

His speaker clicked off. Baird said:

“It’s in our laps. Diane. And yet we have to follow orders. Send the first roll.”

Diane had a tape threaded into a transmitter. It began to unroll through a pickup head. She put on headphones. The tape began to transmit toward the Plumie. Back at base it had been reasoned that a pattern of clickings, plainly artificial and plainly stating facts known to both races, would be the most reasonable way to attempt to open contact. The tape sent a series of cardinal numbers—one to five. Then an addition table, from one plus [Pg 15] one to five plus five. Then a multiplication table up to five times five. It was not startlingly intellectual information to be sent out in tiny clicks ranging up and down the radio spectrum. But it was orders.

Baird sat with compressed lips. Diane listened for a repetition of any of the transmitted signals, sent back by the Plumie. The speakers about the radar room murmured the orders given through all the ship. Radar had to be informed of all orders and activity, so it could check their results outside the ship. So Baird heard the orders for the engine room to be sealed up and the duty-force to get into pressure suits, in case the *Niccola* fought and was hulled. Damage-control parties reported themselves on post, in suits, with equipment ready. Then Taine’s voice snapped: *“Rocket crews, arm even-numbered rockets with chemical*

explosive warheads. Leave odd-numbered rockets armed with atomics. Report back!”

Diane strained her ears for possible re-transmission of the *Niccola*'s signals, which would indicate the Plumie's willingness to try conversation. But she suddenly raised her hand and pointed to the radar-graph instrument. It repeated the positioning of dots which were stray meteoric matter in the space between worlds in this system. What had been a spot—the Plumie ship—was now a line of dots. Baird pressed the button.

“Radar reporting!” he said curtly. “The Plumie ship is heading for us. I'll have relative velocity in ten seconds.”

He heard the skipper swear. Ten seconds later the Doppler measurement became possible. It said the Plumie plunged toward the *Niccola* at miles per second. In half a minute it was tens of miles per second. There was no re-transmission of signals. The Plumie ship had found itself discovered. Apparently it considered itself attacked. It flung itself into a headlong dash for the *Niccola*.



Time passed—interminable time. The sun flared and flamed and writhed in emptiness. The great gas-giant planet rolled through space in splendid state, its moonlets spinning gracefully about its bulk. The oxygen-atmosphere planet to sunward was visible only as a crescent, but the mottlings on its lighted part changed as it revolved—seas and islands and continents receiving the sunlight as it turned. Meteor swarms, so dense in appearance on a radar screen, yet so tenuous in reality, floated in their appointed orbits with a seeming vast leisure.

The feel of slowness was actually the result of distance. Men have always acted upon things close by. Battles have always been fought within eye-range, anyhow. But it was actually 06 hours 35 minutes ship time before the two spacecraft

sighted each other—more than two hours after they plunged toward a rendezvous.

The Plumie ship was a bright golden dot, at first. It decelerated swiftly. In minutes it was a rounded, end-on disk. Then it swerved lightly and [Pg 16] presented an elliptical broadside to the *Niccola*. The *Niccola* was in full deceleration too, by then. The two ships came very nearly to a stop with relation to each other when they were hardly twenty miles apart—which meant great daring on both sides.

Baird heard the skipper grumbling:

“Damned cocky!” He roared suddenly: *“Mr. Baird! How’ve you made out in communicating with them?”*

“Not at all, sir,” said Baird grimly. “They don’t reply.”

He knew from Diane’s expression that there was no sound in the headphones except the frying noise all main-sequence stars give out, and the infrequent thumping noises that come from gas-giant planets’ lower atmospheres, and the Jansky-radiation hiss which comes from everywhere.

The skipper swore. The Plumie ship lay broadside to, less than a score of miles away. It shone in the sunlight. It acted with extraordinary confidence. It was as if it dared the *Niccola* to open fire.

Taine’s voice came out of a speaker, harsh and angry:

“Even-numbered tubes prepare to fire on command.”

Nothing happened. The two ships floated sunward together, neither approaching nor retreating. But with every second, the need for action of some sort increased.

“Mr. Baird!” barked the skipper. *“This is ridiculous! There must be some way to communicate! We can’t sit here glaring at each other forever! Raise them! Get*

some sort of acknowledgment!”

“I’m trying,” said Baird bitterly, “according to orders!”

But he disagreed with those orders. It was official theory that arithmetic values, repeated in proper order, would be the way to open conversation. The assumption was that any rational creature would grasp the idea that orderly signals were rational attempts to open communication.

But it had occurred to Baird that a Plumie might not see this point. Perception of order is not necessarily perception of information—in fact, quite the contrary. A message is a disturbance of order. A microphone does not transmit a message when it sends an unvarying tone. A message has to be unpredictable or it conveys no message. Orderly clicks, even if overheard, might seem to Plumies the result of methodically operating machinery. A race capable of interstellar flight was not likely to be interested or thrilled by exercises a human child goes through in kindergarten. They simply wouldn’t seem meaningful at all.

But before he could ask permission to attempt to make talk in a more sophisticated fashion, voices exclaimed all over the ship. They came blurringly to the loud-speakers. “*Look at that!*” “*What’s he do—*” “*Spinning like—*” From every place where there was a vision-plate on the *Niccola*, men watched the Plumie ship and babbled.

This was at 06 hours 50 minutes ship time.



The elliptical golden object darted [Pg 17] into swift and eccentric motion. Lacking an object of known size for comparison, there was no scale. The golden ship might have been the size of an autumn leaf, and in fact its maneuvers suggested the heedless tumblings and scurrying of falling foliage. It fluttered in swift turns

and somersaults and spinnings. There were weavings like the purposeful feints of boxers not yet come to battle. There were indescribably graceful swoops and loops and curving dashes like some preposterous dance in emptiness.

Taine's voice crashed out of a speaker:

"All even-number rockets," he barked. "Fire!"

Head of a man

The skipper roared a countermand, but too late. The crunching, grunting sound of rockets leaving their launching tubes came before his first syllable was complete. Then there was silence [Pg 18] while the skipper gathered breath for a masterpiece of profanity. But Taine snapped:

"That dance was a sneak-up! The Plumie came four miles nearer while we watched!"

Baird jerked his eyes from watching the Plumie. He looked at the master radar. It was faintly blurred with the fading lines of past gyrations, but the golden ship was much nearer the *Niccola* than it had been.

"Radar reporting," said Baird sickishly. "Mr. Taine is correct. The Plumie ship did approach us while it danced."

Taine's voice snarled:

"Reload even numbers with chemical-explosive war heads. Then remove atomics from odd numbers and replace with chemicals. The range is too short for atomics."

Baird felt curiously divided in his own mind. He disliked Taine very much. Taine was arrogant and suspicious and intolerant even on the *Niccola*. But Taine had been right twice, now. The Plumie ship had crept closer by pure trickery. And it was right to remove atomic war heads from the rockets. They had a pure-blast

radius of ten miles. To destroy the Plumie ship within twice that would endanger the *Niccola*—and leave nothing of the Plumie to examine afterward.

The Plumie ship must have seen the rocket flares, but it continued to dance, coming nearer and ever nearer in seemingly heedless and purposeless plungings and spinnings in star-speckled space. But suddenly there were racing, rushing trails of swirling vapor. Half the *Niccola*'s port broadside plunged toward the golden ship. The fraction of a second later, the starboard half-dozen chemical-explosive rockets swung furiously around the ship's hull and streaked after their brothers. They moved in utterly silent, straight-lined, ravening ferocity toward their target. Baird thought irrelevantly of the vapor trails of an atmosphere-liner in the planet's upper air.

The ruled-line straightness of the first six rockets' course abruptly broke. One of them veered crazily out of control. It shifted to an almost right-angled course. A second swung wildly to the left. A third and fourth and fifth—The sixth of the first line of rockets made a great, sweeping turn and came hurtling back toward the *Niccola*. It was like a nightmare. Lunatic, erratic lines of sunlit vapor eeled before the background of all the stars in creation.

Then the second half-dozen rockets broke ranks, as insanely and irremediably as the first.

Taine's voice screamed out of a speaker, hysterical with fury:

“Detonate! Detonate! They've taken over the rockets and are throwing 'em back at us! Detonate all rockets!”

The heavens seemed streaked and laced with lines of expanding smoke. But now one plunging line erupted at its tip. A swelling globe of smoke marked its end. Another blew up. And another—

The *Niccola*'s rockets faithfully blew themselves to bits on command [Pg 19] from

the *Niccola's* own weapons control. There was nothing else to be done with them. They'd been taken over in flight. They'd been turned and headed back toward their source. They'd have blasted the *Niccola* to bits but for their premature explosions.

There was a peculiar, stunned hush all through the *Niccola*. The only sound that came out of any speaker in the radar room was Taine's voice, high-pitched and raging, mouthing unspeakable hatred of the Plumies, whom no human being had yet seen.



Baird sat tense in the frustrated and desperate composure of the man who can only be of use while he is sitting still and keeping his head. The vision screen was now a blur of writhing mist, lighted by the sun and torn at by emptiness. There was luminosity where the ships had encountered each other. It was sunshine upon thin smoke. It was like the insanely enlarging head of a newborn comet, whose tail would be formed presently by light-pressure. The Plumie ship was almost invisible behind the unsubstantial stuff.

But Baird regarded his radar screens. Microwaves penetrated the mist of rapidly ionizing gases.

“Radar to navigation!” he said sharply. “The Plumie ship is still approaching, dancing as before!”

The skipper said with enormous calm:

“*Any other Plumie ships, Mr. Baird?*”

Diane interposed.

“No sign anywhere. I’ve been watching. This seems to be the only ship within

radar range.”

“*We’ve time to settle with it, then,*” said the skipper. “*Mr. Taine, the Plumie ship is still approaching.*”

Baird found himself hating the Plumies. It was not only that humankind was showing up rather badly, at the moment. It was that the Plumie ship had refused contact and forced a fight. It was that if the *Niccola* were destroyed the Plumie would carry news of the existence of humanity and of the tactics which worked to defeat them. The Plumies could prepare an irresistible fleet. Humanity could be doomed.

But he overheard himself saying bitterly:

“I wish I’d known this was coming, Diane. I ... wouldn’t have resolved to be strictly official, only, until we got back to base.”

Her eyes widened. She looked startled. Then she softened.

“If ... you mean that ... I wish so too.”

“It looks like they’ve got us,” he admitted unhappily. “If they can take our rockets away from us—” Then his voice stopped. He said, “Hold everything!” and pressed the navigation-room button. He snapped: “Radar to navigation. It appears to take the Plumies several seconds to take over a rocket. They have to aim something—a pressor or tractor beam, most likely—and pick off each rocket separately. Nearly forty seconds was consumed in taking over all twelve of our rockets. At shorter range, with [Pg 20] less time available, a rocket might get through!”

The skipper swore briefly. Then:

“*Mr. Taine! When the Plumies are near enough, our rockets may strike before they can be taken over! You follow?*”

Baird heard Taine's shrill-voiced acknowledgment—in the form of practically chattered orders to his rocket-tube crews. Baird listened, checking the orders against what the situation was as the radars saw it. Taine's voice was almost unhuman; so filled with frantic rage that it cracked as he spoke. But the problem at hand was the fulfillment of all his psychopathic urges. He commanded the starboard-side rocket-battery to await special orders. Meanwhile the port-side battery would fire two rockets on widely divergent courses, curving to join at the Plumie ship. They'd be seized. They were to be detonated and another port-side rocket fired instantly, followed by a second hidden in the rocket-trail the first would leave behind. Then the starboard side—

“I'm afraid Taine's our only chance,” said Baird reluctantly. “If he wins, we'll have time to ... talk as people do who like each other. If it doesn't work—”

Diane said quietly:

“Anyhow ... I'm glad you ... wanted me to know. I ... wanted you to know, too.”

She smiled at him, yearningly.



*There was the crump-crump of two rockets going out together. Then the radar told what happened. The Plumie ship was no more than six miles away, dancing somehow deftly in the light of a yellow sun, with all the cosmos spread out as shining pin points of colored light behind it. The radar reported the dash and the death of the two rockets, after their struggle with invisible things that gripped them. They died when they headed reluctantly back to the *Niccola*—and detonated two miles from their parent ship. The skipper's voice came:*

“Mr. Taine! After your next salvo I shall head for the Plumie at full drive, to cut down the distance and the time they have to work in. Be ready!”

The rocket tubes went *crump-crump* again, with a fifth of a second interval. The radar showed two tiny specks speeding through space toward the weaving, shifting speck which was the Plumie.

Outside, in emptiness, there was a filmy haze. It was the rocket-fumes and explosive gases spreading with incredible speed. It was thin as gossamer. The Plumie ship undoubtedly spotted the rockets, but it did not try to turn them. It somehow seized them and deflected them, and darted past them toward the *Niccola*.

“They see the trick,” said Diane, dry-throated. “If they can get in close enough, they can turn it against us!”

There were noises inside the *Niccola*, now. Taine fairly howled an order. There were yells of defiance and excitement. There were more of those inadequate noises as rockets [Pg 21] went out—every tube on the starboard side emptied itself in a series of savage grunts—and the *Niccola*’s magnetronic drive roared at full flux density.

The two ships were less than a mile apart when the *Niccola* let go her full double broadside of missiles. And then it seemed that the Plumie ship was doomed. There were simply too many rockets to be seized and handled before at least one struck. But there was a new condition. The Plumie ship weaved and dodged its way through them. The new condition was that the rockets were just beginning their run. They had not achieved the terrific velocity they would accumulate in ten miles of no-gravity. They were new-launched; logy: clumsy: not the streaking, flashing death-and-destruction they would become with thirty more seconds of acceleration.

So the Plumie ship dodged them with a skill and daring past belief. With an incredible agility it got inside them, nearer to the *Niccola* than they. And then it hurled itself at the human ship as if bent upon a suicidal crash which would

destroy both ships together. But Baird, in the radar room, and the skipper in navigation, knew that it would plunge brilliantly past at the last instant—

And then they knew that it would not. Because, very suddenly and very abruptly, there was something the matter with the Plumie ship. The life went out of it. It ceased to accelerate or decelerate. It ceased to steer. It began to turn slowly on an axis somewhere amidships. Its nose swung to one side, with no change in the direction of its motion. It floated onward. It was broadside to its line of travel. It continued to turn. It hurtled stern-first toward the *Niccola*. It did not swerve. It did not dance. It was a lifeless hulk: a derelict in space.

And it would hit the *Niccola* amidships with no possible result but destruction for both vessels.



The *Niccola*'s skipper bellowed orders, as if shouting would somehow give them more effect. The magnetronic drive roared. He'd demanded a miracle of it, and he almost got one. The drive strained its thrust-members. It hopelessly overloaded its coils. The *Niccola*'s cobalt-steel hull became more than saturated with the drive-field, and it leaped madly upon an evasion course—

And it very nearly got away. It was swinging clear when the Plumie ship drifted within fathoms. It was turning aside when the Plumie ship was within yards. And it was almost safe when the golden hull of the Plumie—shadowed now by the *Niccola* itself—barely scraped a side-keel.

There was a touch, seemingly deliberate and gentle. But the *Niccola* shuddered horribly. Then the vision screens flared from such a light as might herald the crack of doom. There was a brightness greater than the brilliance of the sun. And then there was a wrenching, heaving shock. Then there was blackness. Baird was flung across the radar room, and Diane cried out, and he careened [Pg 22] against a

wall and heard glass shatter. He called:

“Diane!”

He clutched crazily at anything, and called her name again. The *Niccola*'s internal gravity was cut off, and his head spun, and he heard collision-doors closing everywhere, but before they closed completely he heard the rasping sound of giant arcs leaping in the engine room. Then there was silence.

“Diane!” cried Baird fiercely. “Diane!”

“I'm ... here,” she panted. “I'm dizzy, but I ... think I'm all right—”

The battery-powered emergency light came on. It was faint, but he saw her clinging to a bank of instruments where she'd been thrown by the collision. He moved to go to her, and found himself floating in midair. But he drifted to a side wall and worked his way to her.

She clung to him, shivering.

“I ... think,” she said unsteadily, “that we're going to die. Aren't we?”

“We'll see,” he told her. “Hold on to me.”

Guided by the emergency light, he scrambled to the bank of communicator-buttons. What had been the floor was now a side wall. He climbed it and thumbed the navigation-room switch.

“Radar room reporting,” he said curtly. “Power out, gravity off, no reports from outside from power failure. No great physical damage.”

He began to hear other voices. There had never been an actual space-collision in the memory of man, but reports came crisply, and the cut-in speakers in the radar room repeated them. Ship-gravity was out all over the ship. Emergency lights were functioning, and were all the lights there were. There was a slight,

unexplained gravity-drift toward what had been the ship's port side. But damage-control reported no loss of pressure in the *Niccola's* inner hull, though four areas between inner and outer hulls had lost air pressure to space.

"*Mr. Baird,*" rasped the skipper. "*We're blind! Forget everything else and give us eyes to see with!*"

"We'll try battery power to the vision plates," Baird told Diane. "No full resolution, but better than nothing—"

They worked together, feverishly. They were dizzy. Something close to nausea came upon them from pure giddiness. What had been the floor was now a wall, and they had to climb to reach the instruments that had been on a wall and now were on the ceiling. But their weight was ounces only. Baird said abruptly:

"I know what's the matter! We're spinning! The whole ship's spinning! That's why we're giddy and why we have even a trace of weight. Centrifugal force! Ready for the current?"

There was a tiny click, and the battery light dimmed. But a vision screen lighted faintly. The stars it showed were moving specks of light. The sun passed deliberately across the screen. Baird switched to other outside scanners. There was power for only one screen at a time. But he saw [Pg 23] the starkly impossible. He pressed the navigation-room button.

"Radar room reporting," he said urgently. "The Plumie ship is fast to us, in contact with our hull! Both ships are spinning together!" He was trying yet other scanners as he spoke, and now he said: "Got it! There are no lines connecting us to the Plumie, but it looks ... yes! That flash when the ships came together was a flash-over of high potential. We're welded to them along twenty feet of our hull!"

The skipper:

“Damnation! Any sign of intention to board us?”

“Not yet, sir—”

Taine burst in, his voice high-pitched and thick with hatred:

“Damage-control parties attention! Arm yourselves and assemble at starboard air lock! Rocket crews get into suits and prepare to board this Plumie—”

“Countermand!” bellowed the skipper from the speaker beside Baird’s ear. *“Those orders are canceled! Dammit, if we were successfully boarded we’d blow ourselves to bits! Those are our orders! D’you think the Plumies will let their ship be taken? And wouldn’t we blow up with them? Mr. Taine, you will take no offensive action without specific orders! Defensive action is another matter. Mr. Baird! I consider this welding business pure accident. No one would be mad enough to plan it. You watch the Plumies and keep me informed!”*

His voice ceased. And Baird had again the frustrating duty of remaining still and keeping his head while other men engaged in physical activity. He helped Diane to a chair—which was fastened to the floor-which-was-now-a-wall—and she wedged herself fast and began a review of what each of the outside scanners reported. Baird called for more batteries. Power for the radar and visions was more important than anything else, just then. If there were more Plumie ships ...



Electricians half-floated, half-dragged extra batteries to the radar room. Baird hooked them in. The universe outside the ship again appeared filled with brilliantly colored dots of light which were stars. More satisfying, the globe-scanners again reported no new objects anywhere. Nothing new within a quarter million miles. A half-million. Later Baird reported:

“Radars report no strange objects within a million miles of the *Niccola*, sir.”

“Except the ship we’re welded to! But you are doing very well. However, microphones say there is movement inside the Plumie.”

Diane beckoned for Baird’s attention to a screen, which Baird had examined before. Now he stiffened and motioned for her to report.

“We’ve a scanner, sir,” said Diane, “which faces what looks like a port in the Plumie ship. There’s a figure at the port. I can’t make out details, but it is making motions, facing us.”

“*Give me the picture!*” snapped the skipper.

[Pg 24] Man and woman in space

Diane obeyed. It was the merest flip of a switch. Then her eyes went back to the spherical-sweep scanners which reported the bearing and distance of every solid object within their range. She set up two instruments which would measure the angle, bearing, and distance of the two planets now on this side of the sun—the gas-giant and the oxygen-world to sunward. Their orbital speeds and distances were known. The position, course, and speed of the *Niccola* could be computed from any two observations on them.

Diane had returned to the utterly necessary routine of the radar room which was the nerve-center of the ship, gathering all information needed for navigation in space. The fact that there had been a collision, that the *Niccola*’s engines were melted to unlovely scrap, that the Plumie ship was now welded irremovably to a side-keel, and that a Plumie was signaling to humans while both ships went spinning through space toward an unknown destination—these things did not affect the obligations of the radar room.

Baird got other images of the Plumie ship into sharp focus. So near, the scanners required adjustment for precision.

[Pg 25] “Take a look at this!” he said wryly.

She looked. The view was of the Plumie as welded fast to the *Niccola*. The welding was itself an extraordinary result of the Plumie's battle-tactics. Tractor and pressor beams were known to men, of course, but human beings used them only under very special conditions. Their operation involved the building-up of terrific static charges. Unless a tractor-beam generator could be grounded to the object it was to pull, it tended to emit lightning-bolts at unpredictable intervals and in entirely random directions. So men didn't use them. Obviously, the Plumies did.

They'd handled the *Niccola*'s rockets with beams which charged the golden ship to billions of volts. And when the silicon-bronze Plumie ship touched the cobalt-steel *Niccola*—why—that charge had to be shared. It must have been the most spectacular of all artificial electric flames. Part of the *Niccola*'s hull was vaporized, and undoubtedly part of the Plumie. But the unvaporized surfaces were molten and in contact—and they stuck.

For a good twenty feet the two ships were united by the most perfect of vacuum-welds. The wholly dissimilar hulls formed a space-catamaran, with a sort of valley between their bulks. Spinning deliberately, as the united ships did, sometimes the sun shone brightly into that valley, and sometimes it was filled with the blackness of the pit.

While Diane looked, a round door revolved in the side of the Plumie ship. As Diane caught her breath, Baird reported crisply. At his first words Taine burst into raging commands for men to follow him through the *Niccola*'s air lock and fight a boarding party of Plumies in empty space. The skipper very savagely ordered him to be quiet.

“Only one figure has come out,” reported Baird. The skipper watched on a vision plate, but Baird reported so all the *Niccola*'s company would know. “It's small—less than five feet ... I'll see better in a moment.” Sunlight smote down into the valley between the ships. “It's wearing a pressure suit. It seems to be the

same material as the ship. It walks on two legs, as we do ... It has two arms, or something very similar ... The helmet of the suit is very high ... It looks like the armor knights used to fight in ... It's making its way to our air lock ... It does not use magnetic-soled shoes. It's holding onto lines threaded along the other ship's hull ...”

The skipper said curtly:

“Mr. Baird! I hadn't noticed the absence of magnetic shoes. You seem to have an eye for important items. Report to the air lock in person. Leave Lieutenant Holt to keep an eye on outside objects. Quickly, Mr. Baird!”



Baird laid his hand on Diane's shoulder. She smiled at him.

“I'll watch!” she promised.

He went out of the radar room, walking on what had been a side wall. The giddiness and dizziness of continued [Pg 26] rotation was growing less, now. He was getting used to it. But the *Niccola* seemed strange indeed, with the standard up and down and Earth-gravity replaced by a vertical which was all askew and a weight of ounces instead of a hundred and seventy pounds.

He reached the air lock just as the skipper arrived. There were others there—armed and in pressure suits. The skipper glared about him.

“I am in command here,” he said very grimly indeed. “Mr. Taine has a special function, but I am in command! We and the creatures on the Plumie ship are in a very serious fix. One of them apparently means to come on board. There will be no hostility, no sneering, no threatening gestures! This is a parley! You will be careful. But you will not be trigger-happy!”

He glared around again, just as a metallic rapping came upon the *Niccola's* air-lock door. The skipper nodded:

“Let him in the lock, Mr. Baird.”

Baird obeyed. The humming of the unlocking-system sounded. There were clankings. The outer air lock dosed. There was a faint whistling as air went in. The skipper nodded again.

Baird opened the inner door. It was 08 hours 10 minutes ship time.

The Plumie stepped confidently out into the topsy-turvy corridors of the *Niccola*. He was about the size of a ten-year-old human boy, and features which were definitely not grotesque showed through the clear plastic of his helmet. His pressure suit was, engineering-wise, a very clean job. His whole appearance was prepossessing. When he spoke, very clear and quite high sounds—soprano sounds—came from a small speaker-unit at his shoulder.

“For us to talk,” said the skipper heavily, “is pure nonsense. But I take it you’ve something to say.”

The Plumie gazed about with an air of lively curiosity. Then he drew out a flat pad with a white surface and sketched swiftly. He offered it to the *Niccola's* skipper.

“We want this on record,” he growled, staring about.

Diane’s voice said capably from a speaker somewhere nearby:

“Sir, there’s a scanner for inspection of objects brought aboard. Hold the plate flat and I’ll have a photograph—right!”

The skipper said curtly to the Plumie:

“You’ve drawn our two ships linked as they are. What have you to say about it?”

He handed back the plate. The Plumie pressed a stud and it was blank again. He sketched and offered it once more.

“Hm-m-m,” said the skipper. “You can’t use your drive while we’re glued together, eh? Well?”

The Plumie reached up and added lines to the drawing.

“So!” rumbled the skipper, inspecting the additions. “You say it’s up to us to use our drive for both ships.” He growled approvingly: “You consider there’s a truce. You ^[Pg 27] must, because we’re both in the same fix, and not a nice one, either. True enough! We can’t fight each other without committing suicide, now. But we haven’t any drive left! We’re a derelict! How am I going to say that—if I decide to?”

Baird could see the lines on the plate, from the angle at which the skipper held it. He said:

“Sir, we’ve been mapping, up in the radar room. Those last lines are map-coordinates—a separate sketch, sir. I think he’s saying that the two ships, together, are on a falling course toward the sun. That we have to do something or both vessels will fall into it. We should be able to check this, sir.”

“Hah!” growled the skipper. “That’s all we need! Absolutely all we need! To come here, get into a crazy right, have our drive melt to scrap, get crazily welded to a Plumie ship, and then for both of us to fry together! We don’t need anything more than that!”

Diane’s voice came on the speaker:

“Sir, the last radar fixes on the planets in range give us a course directly toward the sun. I’ll repeat the observations.”

The skipper growled. Taine thrust himself forward. He snarled:

“Why doesn’t this Plumie take off its helmet? It lands on oxygen planets! Does it think it’s too good to breathe our air?”

Baird caught the Plumie’s eye. He made a gesture suggesting the removal of the space helmet. The Plumie gestured, in return, to a tiny vent in the suit. He opened something and gas whistled out. He cut it off. The question of why he did not open or remove his helmet was answered. The atmosphere he breathed would not do men any good, nor would theirs do him any good, either. Taine said suspiciously:

“How do we know he’s breathing the stuff he let out then? This creature isn’t human! It’s got no right to attack humans! Now it’s trying to trick us!” His voice changed to a snarl. “We’d better wring its neck! Teach its kind a lesson—”

The skipper roared at him.

“Be quiet! Our ship is a wreck! We have to consider the facts! We and these Plumies are in a fix together, and we have to get out of it before we start to teach anybody anything!” He glared at Taine. Then he said heavily: “Mr. Baird, you seem to notice things. Take this Plumie over the ship. Show him our drive melted down, so he’ll realize we can’t possibly tow his ship into an orbit. He knows that we’re armed, and that we can’t handle our war heads at this range! So we can’t fool each other. We might as well be frank. But you will take full note of his reactions, Mr. Baird!”



Baird advanced, and the skipper made a gesture. The Plumie regarded Baird with interested eyes. And Baird led the way for a tour of the *Niccola*. It was confusing even to him, with right hand converted to up and left hand to down, and sidewise now almost vertical. On the way the Plumie [Pg 28] made more clear, flutelike sounds, and more gestures. Baird answered.

“Our gravity pull was that way,” he explained, “and things fell so fast.”

He grasped a handrail and demonstrated the speed with which things fell in normal ship-gravity. He used a pocket communicator for the falling weight. It was singularly easy to say some things, even highly technical ones, because they'd be what the Plumie would want to know. But quite commonplace things would be very difficult to convey.

Diane's voice came out of the communicator.

“There are no novelties outside,” she said quietly. “It looks like this is the only Plumie ship anywhere around. It could have been exploring, like us. Maybe it was looking for the people who put up Space-Survey markers.”

“Maybe,” agreed Baird, using the communicator. “Is that stuff about falling into the sun correct?”

“It seems so,” said Diane composedly. “I’m checking again. So far, the best course I can get means we graze the sun’s photosphere in fourteen days six hours, allowing for acceleration by the sun’s gravity.”

“And you and I,” said Baird wryly, “have been acting as professional associates only, when—”

“Don’t say it!” said Diane shakily. *“It’s terrible!”*

He put the communicator back in his pocket. The Plumie had watched him. He had a peculiarly gallant air, this small figure in golden space armor with its high-crested helmet.

They reached the engine room. And there was the giant drive shaft of the *Niccola*, once wrapped with yard-thick coils which could induce an incredible density of magnetic flux in the metal. Even the return magnetic field, through the ship’s cobalt-steel hull, was many times higher than saturation. Now the coils

were sagging: mostly melted. There were places where re-solidified metal smoked noisomely against nonmetallic floor or wall-covering. Engineers labored doggedly in the trivial gravity to clean up the mess.

“It’s past repair,” said Baird, to the ship’s first engineer.

“It’s junk,” said that individual dourly. “Give us six months and a place to set up a wire-drawing mill and an insulator synthesizer, and we could rebuild it. But nothing less will be any good.”

The Plumie stared at the drive. He examined the shaft from every angle. He inspected the melted, and partly-melted, and merely burned-out sections of the drive coils. He was plainly unable to understand in any fashion the principle of the magnetronic drive. Baird was tempted to try to explain, because there was surely no secret about a ship drive, but he could imagine no diagrams or gestures which would convey the theory of what happened in cobalt-steel when it was magnetized beyond one hundred thousand Gauss’ flux-density. And without that theory one simply couldn’t explain a magnetronic drive.

They left the engine room. They visited the rocket batteries. The generator [Pg 29] room was burned out, like the drive, by the inconceivable lightning bolt which had passed between the ships on contact. The Plumie was again puzzled. Baird made it clear that the generator-room supplied electric current for the ship’s normal lighting-system and services. The Plumie could grasp that idea. They examined the crew’s quarters, and the mess room, and the Plumie walked confidently among the members of the human crew, who a little while since had tried so painstakingly to destroy his vessel. He made a good impression.

“These little guys,” said a crewman to Baird, admiringly, “they got something. They can handle a ship! I bet they could almost make that ship of theirs play checkers!”

“Close to it,” agreed Baird. He realized something. He pulled the communicator

from his pocket. “Diane! Contact the skipper. He wanted observations. Here’s one. This Plumie acts like soldiers used to act in ancient days—when they wore armor. And we have the same reaction! They will fight like the devil, but during a truce they’ll be friendly, admiring each other as scrappers, but ready to fight as hard as ever when the truce is over. We have the same reaction! Tell the skipper I’ve an idea that it’s a part of their civilization—maybe it’s a necessary part of any civilization! Tell him I guess that there may be necessarily parallel evolution of attitudes, among rational races, as there are parallel evolutions of eyes and legs and wings and fins among all animals everywhere! If I’m right, somebody from this ship will be invited to tour the Plumie! It’s only a guess, but tell him!”

“*Immediately,*” said Diane.



The Plumie followed gallantly as Baird made a steep climb up what once was the floor of a corridor. Then Taine stepped out before them. His eyes burned.

“Giving him a clear picture, eh?” he rasped. “Letting him spy out everything?”

Baird pressed the communicator call for the radar room and said coldly:

“I’m obeying orders. Look, Taine! You were picked for your job because you were a xenophobe. It helps in your proper functioning. But this Plumie is here under a flag of truce—”

“Flag of truce!” snarled Taine. “It’s vermin! It’s not human! I’ll—”

“If you move one inch nearer him,” said Baird gently, “just one inch—”

The skipper’s voice bellowed through the general call speakers all over the ship:

“*Mr. Taine! You will go to your quarters, under arrest! Mr. Baird, burn him down if he hesitates!*”

Then there was a rushing, and scrambling figures appeared and were all about. They were members of the *Niccola's* crew, sent by the skipper. They regarded the Plumie with detachment, but Taine with a wary expectancy. Taine turned purple with fury. He shouted. He raged. He called Baird and the others Plumie-lovers and vermin-worshipers. He shouted [Pg 30] foulnesses at them. But he did not attack.

When, still shouting, he went away, Baird said apologetically to the Plumie:

“He’s a xenophobe. He has a pathological hatred of strangers—even of strangeness. We have him on board because—”

Then he stopped. The Plumie wouldn’t understand, of course. But his eyes took on a curious look. It was almost as if, looking at Baird, they twinkled.

Baird took him back to the skipper.

“He’s got the picture, sir,” he reported.

The Plumie pulled out his sketch plate. He drew on it. He offered it. The skipper said heavily:

“You guessed right, Mr. Baird. He suggests that someone from this ship go on board the Plumie vessel. He’s drawn two pressure-suited figures going in their air lock. One’s larger than the other. Will you go?”

“Naturally!” said Baird. Then he added thoughtfully: “But I’d better carry a portable scanner, sir. It should work perfectly well through a bronze hull, sir.”

The skipper nodded and began to sketch a diagram which would amount to an acceptance of the Plumie’s invitation.

This was at 07 hours 40 minutes ship time. Outside the sedately rotating metal hulls—the one a polished blue-silver and the other a glittering golden bronze—the cosmos continued to be as always. The haze from explosive fumes and

rocket-fuel was, perhaps, a little thinner. The brighter stars shone through it. The gas-giant planet outward from the sun was a perceptible disk instead of a diffuse glow. The oxygen-planet to sunward showed again as a lighted crescent.

Presently Baird, in a human spacesuit, accompanied the Plumie into the *Niccola's* air lock and out to emptiness. His magnetic-soled shoes clung to the *Niccola's* cobalt-steel skin. Fastened to his shoulder there was a tiny scanner and microphone, which would relay everything he saw and heard back to the radar room and to Diane.

She watched tensely as he went inside the Plumie ship. Other screens relayed the image and his voice to other places on the *Niccola*.

He was gone a long time. From the beginning, of course, there were surprises. When the Plumie escort removed his helmet, on his own ship, the reason for the helmet's high crest was apparent. He had a high crest of what looked remarkably like feathers—and it was not artificial. It grew there. The reason for conventionalized plumes on bronze survey plates was clear. It was exactly like the reason for human features or figures as decorative additions to the inscriptions on Space Survey marker plates. Even the Plumie's hands had odd crestlets which stood out when he bent his fingers. The other Plumies were no less graceful and no less colorful. They had equally clear soprano voices. They were equally miniature and so devoid of apparent menace.

[Pg 31] But there were also technical surprises. Baird was taken immediately to the Plumie ship's engine room, and Diane heard the sharp intake of breath with which he appeared to recognize its working principle. There were Plumie engineers working feverishly at it, attempting to discover something to repair. But they found nothing. The Plumie drive simply would not work.

They took Baird through the ship's entire fabric. And their purpose, when it became clear, was startling. The Plumie ship had no rocket tubes. It had no

beam-projectors except small-sized objects which were—which must be—their projectors of tractor and pressor beams. They were elaborately grounded to the ship's substance. But they were not originally designed for ultra-heavy service. They hadn't and couldn't have the enormous capacity Baird had expected. He was astounded.



When he returned to the *Niccola*, he went instantly to the radar room to make sure that pictures taken through his scanner had turned out well. And there was Diane.

But the skipper's voice boomed at him from the wall.

“Mr. Baird! What have you to add to the information you sent back?”

“Three items, sir,” said Baird. He drew a deep breath. “For the first, sir, the Plumie ship is unarmed. They've tractor and pressor beams for handling material. They probably use them to build their cairns. But they weren't meant for weapons. The Plumies, sir, hadn't a thing to fight with when they drove for us after we detected them.”

The skipper blinked hard.

“Are you sure of that, Mr. Baird?”

“Yes, sir,” said Baird uncomfortably. “The Plumie ship is an exploring ship—a survey ship, sir. You saw their mapping equipment. But when they spotted us, and we spotted them—they bluffed! When we fired rockets at them, they turned them back with tractor and pressor beams. They drove for us, sir, to try to destroy us with our own bombs, because they didn't have any of their own.”

The skipper's mouth opened and closed.

“Another item, sir,” said Baird more uncomfortably still. “They don’t use iron or steel. Every metal object I saw was either a bronze or a light metal. I suspect some of their equipment’s made of potassium, and I’m fairly sure they use sodium in the place of aluminum. Their atmosphere’s quite different from ours—obviously! They’d use bronze for their ship’s hull because they can venture into an oxygen atmosphere in a bronze ship. A sodium-hulled ship would be lighter, but it would burn in oxygen. Where there was moisture—”

The skipper blinked.

“But they couldn’t drive in a non-magnetic hull!” he protested. *“A ship has to be magnetic to drive!”*

“Sir,” said Baird, his voice still shaken, “they don’t use a magnetronic drive. I once saw a picture of the drive they use, in a stereo on the history of space travel. The principle’s very old. We’ve practically forgotten it. [Pg 32] It’s a Dirac pusher-drive, sir. Among us humans, it came right after rockets. The planets of Sol were first reached by ships using Dirac pushers. But—” He paused. “They won’t operate in a magnetic field above seventy Gauss, sir. It’s a static-charge reaction, sir, and in a magnetic field it simply stops working.”

The skipper regarded Baird unwinkingly for a long time.

“I think you are telling me,” he said at long last, *“that the Plumies’ drive would work if they were cut free of the Niccola.”*

“Yes, sir,” said Baird. “Their engineers were opening up the drive-elements and checking them, and then closing them up again. They couldn’t seem to find anything wrong. I don’t think they know what the trouble is. It’s the *Niccola’s* magnetic field. I think it was our field that caused the collision by stopping their drive and killing all their controls when they came close enough.”

“Did you tell them?” demanded the skipper.

“There was no easy way to tell them by diagrams, sir.”

Taine’s voice cut in. It was feverish. It was strident. It was triumphant.

“Sir! The Niccola is effectively a wreck and unrepairable. But the Plumie ship is operable if cut loose. As weapons officer, I intend to take the Plumie ship, let out its air, fill its tanks with our air, start up its drive, and turn it over to you for navigation back to base!”

Plumie and two astronauts on surface of spaceship

Baird raged. But he said coldly:

“We’re a long way from home, Mr. Taine, and the Dirac pusher drive is slow. If we headed back to base in the Plumie ship with its Dirac pusher, we’d all be dead of old age before we’d gone halfway.”

“But unless we take it,” raged Taine, “we hit this sun in fourteen days! We don’t have to die now! We can land on the oxygen planet up ahead! We’ve only to kill these vermin and take their ship, and we’ll live!”

Diane’s voice said dispassionately:

“Report. A Plumie in a pressure suit just came out of their air lock. It’s carrying a parcel toward our air lock.”

Taine snarled instantly:

“They’ll sneak something in the [Pg 33] Niccola to blast it, and then cut free and go away!”

The skipper said very grimly:

“Mr. Taine, credit me with minimum brains! There is no way the Plumies can take this ship without an atomic bomb exploding to destroy both ships. You should know it!” Then he snapped: *“Air lock area, listen for a knock, and let in the Plumie or the parcel he leaves.”*

There was silence. Baird said very quietly:

“I doubt they think it possible to cut the ships apart. A torch is no good on thick silicon bronze. It conducts heat too well! And they don’t use steel. They probably haven’t a cutting-torch at all.”



From the radar room he watched the Plumie place an object in the air lock and withdraw. He watched from a scanner inside the ship as someone brought in what the Plumie had left. An electronics man bustled forward. He looked it over quickly. It was complex, but his examination suddenly seemed satisfying to him. But a grayish vapor developed and he sniffed [Pg 34] and wrinkled his nose. He picked up a communicator.

“Sir, they’ve sent us a power-generator. Some of its parts are going bad in our atmosphere, sir, but this looks to me like a hell of a good idea for a generator! I never saw anything like it, but it’s good! You can set it for any voltage and it’ll turn out plenty juice!”

“Put it in helium,” snapped the skipper. *“It won’t break down in that! Then see how it serves!”*

In the radar room, Baird drew a deep breath. He went carefully to each of the screens and every radar. Diane saw what he was about, and checked with him. They met at the middle of the radar room.

“Everything’s checked out,” said Baird gravely. “There’s nothing else around. There’s nothing we can be called on to do before something happens. So ... we can ... act like people.”

Diane smiled very faintly.

“Not like people. Just like us.” She said wistfully: “Don’t you want to tell me something? Something you intended to tell me only after we got back to base?”

He did. He told it to her. And there was also something she had not intended to tell him at all—unless he told her first. She said it now. They felt that such sayings were of the greatest possible importance. They clung together, saying them again. And it seemed wholly monstrous that two people who cared so desperately had wasted so much time acting like professional associates—

explorer-ship officers—when things like this were to be said ...

As they talked incoherently, or were even more eloquently silent, the ship's ordinary lights came on. The battery-lamp went on.

“We've got to switch back to ship's circuit,” said Baird reluctantly. They separated, and restored the operating circuits to normal. “We've got fourteen days,” he added, “and so much time to be on duty, and we've a lost lifetime to live in fourteen days! Diane—”

She flushed vividly. So Baird said very politely into the microphone to the navigation room:

“Sir, Lieutenant Holt and myself would like to speak directly to you in the navigation room. May we?”

“*Why not?*” growled the skipper. “*You've noticed that the Plumie generator is giving the whole ship lights and services?*”

“Yes, sir,” said Baird. “We'll be there right away.”



They heard the skipper's grunt as they hurried through the door. A moment later the ship's normal gravity returned—also through the Plumie generator. Up was up again, and down was down, and the corridors and cabins of the *Niccola* were brightly illuminated. Had the ship been other than an engineless wreck, falling through a hundred and fifty million miles of emptiness into the flaming photosphere of a sun, everything would have seemed quite normal, including the errand Baird and Diane were upon, and the fact that they [Pg 35] held hands self-consciously as they went about it.

They skirted the bulkhead of the main air tank. They headed along the broader

corridor which went past the indented inner door of the air lock. They had reached that indentation when Baird saw that the inner air-lock door was closing. He saw a human pressure suit past its edge. He saw the corner of some object that had been put down on the air-lock floor.

Baird shouted, and rushed toward the lock. He seized the inner handle and tried to force open the door again, so that no one inside it could emerge into the emptiness without. He failed. He wrenched frantically at the control of the outer door. It suddenly swung freely. The outer door had been put on manual. It could be and was being opened from inside.

“Tell the skipper,” raged Baird. “Taine’s taking something out!” He tore open a pressure-suit cupboard in the wall beside the lock door. “He’ll make the Plumies think it’s a return-gift for the generator!” He eeled into the pressure suit and zipped it up to his neck. “The man’s crazy! He thinks we can take their ship and stay alive for a while! Dammit, our air would ruin half their equipment! Tell the skipper to send help!”

He wrenched at the door again, jamming down his helmet with one hand. And this time the control worked. Taine, most probably, had forgotten that the inner control was disengaged only when the manual was actively in use. Diane raced away, panting. Baird swore bitterly at the slowness of the outer door’s closing. He was tearing at the inner door long before it could be opened. He flung himself in and dragged it shut, and struck the emergency air-release which bled the air lock into space for speed of operation. He thrust out the outer door and plunged through.

His momentum carried him almost too far. He fell, and only the magnetic soles of his shoes enabled him to check himself. He was in that singular valley between the two ships, where their hulls were impregably welded fast. Round-hulled Plumie ship, and ganoid-shaped *Niccola*, they stuck immovably together as if they had been that way since time began. Where the sky appeared above

Baird's head, the stars moved in stately procession across the valley roof.

He heard a metallic rapping through the fabric of his space armor. Then sunlight glittered, and the valley filled with a fierce glare, and a man in a human spacesuit stood on the *Niccola's* plating, opposite the Plumie air lock. He held a bulky object under his arm. With his other gauntlet he rapped again.

"You fool!" shouted Baird. "Stop that! We couldn't use their ship, anyhow!"

His space phone had turned on with the air supply. Taine's voice snarled:

"We'll try! You keep back! They are not human!"

But Baird ran toward him. The sensation of running upon magnetic-soled shoes was unearthly: it was like [Pg 36] trying to run on fly-paper or bird-lime. But in addition there was no gravity here, and no sense of balance, and there was the feeling of perpetual fall.

There could be no science nor any skill in an encounter under such conditions. Baird partly ran and partly staggered and partly skated to where Taine faced him, snarling. He threw himself at the other man—and then the sun vanished behind the bronze ship's hull, and only stars moved visibly in all the universe.



But the sound of his impact was loud in Baird's ears inside the suit. There was a slightly different sound when his armor struck Taine's, and when it struck the heavier metal of the two ships. He fought. But the suits were intended to be defense against greater stresses than human blows could offer. In the darkness, it was like two blindfolded men fighting each other while encased in pillows.

Then the sun returned, floating sedately above the valley, and Baird could see his enemy. He saw, too, that the Plumie air lock was now open and that a small,

erect, and somehow jaunty figure in golden space armor stood in the opening and watched gravely as the two men fought.

Taine cursed, panting with hysterical hate. He flung himself at Baird, and Baird toppled because he'd put one foot past the welded boundary between the *Niccola's* cobalt steel and the Plumie ship's bronze. One foot held to nothing. And that was a ghastly sensation, because if Taine only rugged his other foot free and heaved—why—then Baird would go floating away from the rotating, now-twinning ships, floating farther and farther away forever.

But darkness fell, and he scrambled back to the *Niccola's* hull as a disorderly parade of stars went by above him. He pantingly waited fresh attack. He felt something—and it was the object Taine had meant to offer as a return present to the Plumies. It was unquestionably explosive, either booby-trapped or timed to explode inside the Plumie ship. Now it rocked gently, gripped by the magnetism of the steel.

The sun appeared again, and Taine was yards away, crawling and fumbling for Baird. Then he saw him, and rose and rushed, and the clankings of his shoe-soles were loud. Baird flung himself at Taine in a savage tackle.

He struck Taine's legs a glancing blow, and the cobalt steel held his armor fast, but Taine careened and bounced against the round bronze wall of the Plumie, and bounced again. Then he screamed, because he went floating slowly out to emptiness, his arms and legs jerking spasmodically, while he shrieked ...

The Plumie in the air lock stepped out. He trailed a cord behind him. He leaped briskly toward nothingness.

There came quick darkness once more, and Baird struggled erect despite the adhesiveness of the *Niccola's* hull. When he was fully upright, sick with horror at what had come about, there was sunlight yet again, and men [Pg 37] were coming out of the *Niccola's* air lock, and the Plumie who'd leaped for space was

pulling himself back to his own ship again. He had a loop of the cord twisted around Taine's leg. But Taine screamed and screamed inside his spacesuit.

It was odd that one could recognize the skipper even inside space armor. But Baird felt sick. He saw Taine received, still screaming, and carried into the lock. The skipper growled an infuriated demand for details. His space phone had come on, too, when its air supply began. Baird explained, his teeth chattering.

“Hah!” grunted the skipper. *“Taine was a mistake. He shouldn't ever have left ground. When a man's potty in one fashion, there'll be cracks in him all over. What's this?”*

The Plumie in the golden armor very soberly offered the skipper the object Taine had meant to introduce into the Plumie's ship. Baird said desperately that he'd fought against it, because he believed it a booby trap to kill the Plumies so men could take their ship and fill it with air and cut it free, and then make a landing somewhere.

“Damned foolishness!” rumbled the skipper. *“Their ship'd begin to crumble with our air in it! If it held to a landing—”*

Then he considered the object he'd accepted from the Plumie. It could have been a rocket war head, enclosed in some container that would detonate it if opened. Or there might be a timing device. The skipper grunted. He heaved it skyward.

The misshapen object went floating away toward emptiness. Sunlight smote harshly upon it.

“Don't want it back in the Niccola,” growled the skipper, *“but just to make sure —”*

He fumbled a hand weapon out of his belt. He raised it, and it spurted flame—very tiny blue-white sparks, each one indicating a pellet of metal flung away at high velocity.

One of them struck the shining, retreating container. It exploded with a monstrous, soundless, violence. It had been a rocket's war head. There could have been only one reason for it to be introduced into a Plumie ship. Baird ceased to be shaky. Instead, he was ashamed.

The skipper growled inarticulately. He looked at the Plumie, again standing in the golden ship's air lock.

"We'll go back, Mr. Baird. What you've done won't save our lives, and nobody will ever know you did it. But I think well of you. Come along!"

This was at 11 hours 5 minutes ship time.



A good half hour later the skipper's voice bellowed from the speakers all over the *Niccola*. His heavy-jowled features stared doggedly out of screens wherever men were on duty or at ease.

"Hear this!" he said forbiddingly. *"We have checked our course and speed. We have verified that there is no possible jury-rig for our engines that could get us into any sort of orbit, let alone land us on the only planet in this system with air we could [Pg 38] breathe. It is officially certain that in thirteen days nine hours from now, the Niccola will be so close to the sun that her hull will melt down. Which will be no loss to us because we'll be dead then, still going on into the sun to be vaporized with the ship. There is nothing to be done about it. We can do nothing to save our own lives!"*

He glared out of each and every one of the screens, wherever there were men to see him.

"But," he rumbled, *"the Plumies can get away if we help them. They have no*

cutting torches. We have. We can cut their ship free. They can repair their drive—but it's most likely that it'll operate perfectly when they're a mile from the Niccola's magnetic field. They can't help us. But we can help them. And sooner or later some Plumie ship is going to encounter some other human ship. If we cut these Plumies loose, they'll report what we did. When they meet other men, they'll be cagey because they'll remember Taine. But they'll know they can make friends, because we did them a favor when we'd nothing to gain by it. I can offer no reward. But I ask for volunteers to go outside and cut the Plumie ship loose, so the Plumies can go home in safety instead of on into the sun with us!"

He glared, and cut off the image.

Diane held tightly to Baird's hand, in the radar room. He said evenly:

"There'll be volunteers. The Plumies are pretty sporting characters—putting up a fight with an unarmed ship, and so on. If there aren't enough other volunteers, the skipper and I will cut them free by ourselves."

Diane said, dry-throated:

"I'll help. So I can be with you. We've got—so little time."

"I'll ask the skipper as soon as the Plumie ship's free."

"Y-yes," said Diane. And she pressed her face against his shoulder, and wept.

This was at 01 hours, 20 minutes ship time. At 03 hours even, there was peculiar activity in the valley between the welded ships. There were men in space armor working cutting-torches where for twenty feet the two ships were solidly attached. Blue-white flames bored savagely into solid metal, and melted copper gave off strangely colored clouds of vapor—which emptiness whisked away to nothing—and molten iron and cobalt made equally lurid clouds of other colors.

There were Plumies in the air lock, watching.

At 03 hours 40 minutes ship time, all the men but one drew back. They went inside the *Niccola*. Only one man remained, cutting at the last sliver of metal that held the two ships together.

It parted. The Plumie ship swept swiftly away, moved by the centrifugal force of the rotary motion the joined vessels had possessed. It dwindled and dwindled. It was a half mile away. A mile. The last man on the outside of the *Niccola*'s hull thriftily [Pg 39] brought his torch to the air lock and came in.

Suddenly, the distant golden hull came to life. It steadied. It ceased to spin, however slowly. It darted ahead. It checked. It swung to the right and left and up and down. It was alive again.



In the radar room, Diane walked into Baird's arms and said shakily:

"Now we ... we have almost fourteen days."

"Wait," he commanded. "When the Plumies understood what we were doing, and why, they drew diagrams. They hadn't thought of cutting free, out in space, without the spinning saws they use to cut bronze with. But they asked for a scanner and a screen. They checked on its use. I want to see—"

He flipped on the screen. And there was instantly a Plumie looking eagerly out of it, for some sign of communication established. There were soprano sounds, and he waved a hand for attention. Then he zestfully held up one diagram after another.

Baird drew a deep breath. A very deep breath. He pressed the navigation-room call. The skipper looked dourly at him.

"Well?" said the skipper forbiddingly.

“Sir,” said Baird, very quietly indeed, “the Plumies are talking by diagram over the communicator set we gave them. Their drive works. They’re as well off as they ever were. And they’ve been modifying their tractor beams—stepping them up to higher power.”

“*What of it?*” demanded the skipper, rumbling.

“They believe,” said Baird, “that they can handle the *Niccola* with their beefed-up tractor beams.” He wetted his lips. “They’re going to tow us to the oxygen planet ahead, sir. They’re going to set us down on it. They’ll help us find the metals we need to build the tools to repair the *Niccola*, sir. You see the reasoning, sir. We turned them loose to improve the chance of friendly contact when another human ship runs into them. They want us to carry back—to be proof that Plumies and men can be friends. It seems that—they like us, sir.”

He stopped for a moment. Then he went on reasonably;

“And besides that, it’ll be one hell of a fine business proposition. We never bother with hydrogen-methane planets. They’ve minerals and chemicals we haven’t got, but even the stones of a methane-hydrogen planet are ready to combine with the oxygen we need to breathe! We can’t carry or keep enough oxygen for real work. The same thing’s true with them on an oxygen planet. We can’t work on each other’s planets, but we can do fine business in each other’s minerals and chemicals from those planets. I’ve got a feeling, sir, that the Plumie cairns are location-notices; markers set up over ore deposits they can find but can’t hope to work, yet they claim against the day when their scientists find a way to make them worth owning. [Pg 40] I’d be willing to bet, sir, that if we explored hydrogen planets as thoroughly as oxygen ones, we’d find cairns on their-type planets that they haven’t colonized yet.”

The skipper stared. His mouth dropped open.

“And I think, sir,” said Baird, “that until they detected us they thought they were

the only intelligent race in the galaxy. They were upset to discover suddenly that they were not, and at first they'd no idea what we'd be like. But I'm guessing now, sir, that they're figuring on what chemicals and ores to start swapping with us." Then he added, "When you think of it, sir, probably the first metal they ever used was aluminum—where our ancestors used copper—and they had a beryllium age next, instead of iron. And right now, sir it's probably as expensive for them to refine iron as it is for us to handle titanium and beryllium and osmium—which are duck soup for them! Our two cultures ought to thrive as long as we're friends, sir. They know it already—and we'll find it out in a hurry!"

The skipper's mouth moved. It closed, and then dropped open again. The search for the Plumies had been made because it looked like they had to be fought. But Baird had just pointed out some extremely commonsense items which changed the situation entirely. And there was evidence that the Plumies saw the situation the new way. The skipper felt such enormous relief that his manner changed. He displayed what was almost effusive cordiality—for the skipper. He cleared his throat.

"Hm-m-m. Hah! Very good, Mr. Baird," he said formidably. *"And of course with time and air and metals we can rebuild our drive. For that matter, we could rebuild the Niccola! I'll notify the ship's company, Mr. Baird. Very good!"* He moved to use another microphone. Then he checked himself. *"Your expression is odd, Mr. Baird. Did you wish to say something more?"*

"Y-yes, sir," said Baird. He held Diane's hand fast. "It'll be months before we get back to port, sir. And it's normally against regulations, but under the circumstances ... would you mind ... as skipper ... marrying Lieutenant Holt and me?"

The skipper snorted. Then he said almost—almost—amiably;

“Hm-m-m. You’ve both done very well, Mr. Baird. Yes. Come to the navigation room and we’ll get it over with. Say—ten minutes from now.”

Baird grinned at Diane. Her eyes shone a little.

This was at 04 hours 10 minutes ship time. It was exactly twelve hours since the alarm-bell rang.

THE END

Transcriber’s note

The following typographical errors have been corrected:

- “congenial” to “congenital”
- “Mircowaves” to “Microwaves”
- “undoutbedly” to “undoubtedly” (twice)
- “seemd” to “seemed”
- “Lieutenant Hold” to “Lieutenant Holt”

End of the Project Gutenberg EBook of The Aliens, by Murray Leinster

*** END OF THIS PROJECT GUTENBERG EBOOK THE ALIENS ***

***** This file should be named 24104-h.htm or 24104-h.zip *****
This and all associated files of various formats will be found in:
<http://www.gutenberg.org/2/4/1/0/24104/>

Produced by Greg Weeks, Bruce Albrecht, Louise Pryor and
the Online Distributed Proofreading Team at
<http://www.pgdp.net>

Updated editions will replace the previous one--the old editions
will be renamed.

Creating the works from public domain print editions means that no
one owns a United States copyright in these works, so the Foundation
(and you!) can copy and distribute it in the United States without
permission and without paying copyright royalties. Special rules,

set forth in the General Terms of Use part of this license, apply to copying and distributing Project Gutenberg-tm electronic works to protect the PROJECT GUTENBERG-tm concept and trademark. Project Gutenberg is a registered trademark, and may not be used if you charge for the eBooks, unless you receive specific permission. If you do not charge anything for copies of this eBook, complying with the rules is very easy. You may use this eBook for nearly any purpose such as creation of derivative works, reports, performances and research. They may be modified and printed and given away--you may do practically ANYTHING with public domain eBooks. Redistribution is subject to the trademark license, especially commercial redistribution.

*** START: FULL LICENSE ***

THE FULL PROJECT GUTENBERG LICENSE
PLEASE READ THIS BEFORE YOU DISTRIBUTE OR USE THIS WORK

To protect the Project Gutenberg-tm mission of promoting the free distribution of electronic works, by using or distributing this work (or any other work associated in any way with the phrase "Project Gutenberg"), you agree to comply with all the terms of the Full Project Gutenberg-tm License (available with this file or online at <http://gutenberg.org/license>).

Section 1. General Terms of Use and Redistributing Project Gutenberg-tm electronic works

1.A. By reading or using any part of this Project Gutenberg-tm electronic work, you indicate that you have read, understand, agree to and accept all the terms of this license and intellectual property (trademark/copyright) agreement. If you do not agree to abide by all the terms of this agreement, you must cease using and return or destroy all copies of Project Gutenberg-tm electronic works in your possession. If you paid a fee for obtaining a copy of or access to a Project Gutenberg-tm electronic work and you do not agree to be bound by the terms of this agreement, you may obtain a refund from the person or entity to whom you paid the fee as set forth in paragraph 1.E.8.

1.B. "Project Gutenberg" is a registered trademark. It may only be used on or associated in any way with an electronic work by people who agree to be bound by the terms of this agreement. There are a few things that you can do with most Project Gutenberg-tm electronic works even without complying with the full terms of this agreement. See paragraph 1.C below. There are a lot of things you can do with Project Gutenberg-tm electronic works if you follow the terms of this agreement and help preserve free future access to Project Gutenberg-tm electronic works. See paragraph 1.E below.

1.C. The Project Gutenberg Literary Archive Foundation ("the Foundation" or PGLAF), owns a compilation copyright in the collection of Project Gutenberg-tm electronic works. Nearly all the individual works in the collection are in the public domain in the United States. If an individual work is in the public domain in the United States and you are located in the United States, we do not claim a right to prevent you from copying, distributing, performing, displaying or creating derivative works based on the work as long as all references to Project Gutenberg are removed. Of course, we hope that you will support the Project Gutenberg-tm mission of promoting free access to electronic works by freely sharing Project Gutenberg-tm works in compliance with the terms of this agreement for keeping the Project Gutenberg-tm name associated with

the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg-tm License when you share it without charge with others.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg-tm work. The Foundation makes no representations concerning the copyright status of any work in any country outside the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg-tm License must appear prominently whenever any copy of a Project Gutenberg-tm work (any work on which the phrase "Project Gutenberg" appears, or with which the phrase "Project Gutenberg" is associated) is accessed, displayed, performed, viewed, copied or distributed:

This eBook is for the use of anyone anywhere at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.org

1.E.2. If an individual Project Gutenberg-tm electronic work is derived from the public domain (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase "Project Gutenberg" associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg-tm trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg-tm electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg-tm License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg-tm License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg-tm.

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg-tm License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg-tm work in a format other than "Plain Vanilla ASCII" or other format used in the official version posted on the official Project Gutenberg-tm web site (www.gutenberg.org), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon

request, of the work in its original "Plain Vanilla ASCII" or other form. Any alternate format must include the full Project Gutenberg-tm License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg-tm works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg-tm electronic works provided that

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg-tm works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg-tm trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, "Information about donations to the Project Gutenberg Literary Archive Foundation."
- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg-tm License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg-tm works.
- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of receipt of the work.
- You comply with all other terms of this agreement for free distribution of Project Gutenberg-tm works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg-tm electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from both the Project Gutenberg Literary Archive Foundation and Michael Hart, the owner of the Project Gutenberg-tm trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread public domain works in creating the Project Gutenberg-tm collection. Despite these efforts, Project Gutenberg-tm electronic works, and the medium on which they may be stored, may contain "Defects," such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the "Right of Replacement or Refund" described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project

Gutenberg-tm trademark, and any other party distributing a Project Gutenberg-tm electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH F3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you 'AS-IS' WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg-tm electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg-tm electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause to occur: (a) distribution of this or any Project Gutenberg-tm work, (b) alteration, modification, or additions or deletions to any Project Gutenberg-tm work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg-tm

Project Gutenberg-tm is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need, is critical to reaching Project Gutenberg-tm's goals and ensuring that the Project Gutenberg-tm collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg-tm and future generations. To learn more about the Project Gutenberg Literary Archive Foundation

and how your efforts and donations can help, see Sections 3 and 4 and the Foundation web page at <http://www.pglaaf.org>.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Its 501(c)(3) letter is posted at <http://pglaaf.org/fundraising>. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's principal office is located at 4557 Melan Dr. S. Fairbanks, AK, 99712., but its volunteers and employees are scattered throughout numerous locations. Its business office is located at 809 North 1500 West, Salt Lake City, UT 84116, (801) 596-1887, email business@pglaaf.org. Email contact links and up to date contact information can be found at the Foundation's web site and official page at <http://pglaaf.org>

For additional contact information:

Dr. Gregory B. Newby
Chief Executive and Director
gbnewby@pglaaf.org

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg-tm depends upon and cannot survive without wide spread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine readable form accessible by the widest array of equipment including outdated equipment. Many small donations (\$1 to \$5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To SEND DONATIONS or determine the status of compliance for any particular state visit <http://pglaaf.org>

While we cannot and do not solicit contributions from states where we have not met the solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg Web pages for current donation methods and addresses. Donations are accepted in a number of other ways including checks, online payments and credit card donations. To donate, please visit: <http://pglaaf.org/donate>

Section 5. General Information About Project Gutenberg-tm electronic works.

Professor Michael S. Hart is the originator of the Project Gutenberg-tm concept of a library of electronic works that could be freely shared with anyone. For thirty years, he produced and distributed Project Gutenberg-tm eBooks with only a loose network of volunteer support.

Project Gutenberg-tm eBooks are often created from several printed editions, all of which are confirmed as Public Domain in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our Web site which has the main PG search facility:

<http://www.gutenberg.org>

This Web site includes information about Project Gutenberg-tm, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.