

V0.8

WAIT IT OUT

Night on Pluto. Sharp and distinct, the horizon line cuts across my field of vision. Below that broken line is the dim gray-white of snow seen by starlight. Above, space-blackness and spacebright stars. From behind a jagged row of frozen mountains the stars pour up in singletons and clusters and streamers of cold white dots. Slowly they move, but visibly, just fast enough for a steady eye to capture their motion.

Something wrong there. Pluto's rotation period is long: 6.39 days. Time must have slowed for me.

It should have stopped.

I wonder if I may have made a mistake.

The planet's small size brings the horizon close. It seems even closer without a haze of atmosphere to fog the distances. Two sharp peaks protrude into the star swarm like the filed front teeth of a cannibal warrior. In the cleft between those peaks shines a sudden bright point.

I recognize the Sun, though it shows no more disk than any other, dimmer star. The Sun shines as a cold point between the frozen peaks; it pulls free of the rocks and shines in my eyes . . .

The Sun is gone, the starfield has shifted. I must have passed out.

It figures.

Have I made a mistake? It won't kill me if I have. It could drive me mad, though . . .

I don't feel mad. I don't feel anything, not pain, not loss, not regret, not fear. Not even pity. Just: what a situation.

Gray-white against gray-white: the landing craft, short and wide and conical, stands half-submerged in an icy plain below the level of my eyes. Here I stand, looking east, waiting.

Take a lesson: this is what comes of not wanting to die.

Pluto was not the most distant planet. It had stopped being that in 1979, ten years ago. Now Pluto was at perihelion, as close to the Sun-and to Earth-as it would ever get. To ignore such an opportunity would have been sheer waste.

And so we came, Jerome and Sammy and I, in an inflated plastic bubble poised on an ion jet. We'd spent a year and a half in that bubble. After so long together, with so little privacy, perhaps we should have hated each other. We didn't. The UN psycho team must have chosen well.

But-just to be out of sight of the others, even for a few minutes. Just to have something to do, something that was not predictable. A new world could hold infinite surprises. As a matter of fact, so could our laboratory-tested hardware. I don't think any of us really trusted the Nerva-K under our landing craft.

Think it through. For long trips in space, you use an ion jet giving low thrust over long periods of time. The ion motor on our own craft had been decades in use. Where gravity is materially lower than Earth's, you land on dependable chemical rockets. For landings on Earth and Venus, you use heat shields and the braking power of the atmosphere. For landing on the gas giants-but who would want to?

The Nerva-class fission rockets are used only for takeoff from Earth, where thrust and efficiency count. Responsiveness and maneuverability count for too much during a powered landing. And a heavy planet will always have an atmosphere for braking.

Pluto didn't.

For Pluto, the chemical jets to take us down and bring us back up were too heavy to carry all that way. We needed a highly maneuverable Nerva-type atomic rocket motor using hydrogen for reaction mass.

And we had it. But we didn't trust it.

Jerome Glass and I went down, leaving Sammy Cross in orbit. He griped about that, of course. He'd started that back at the Cape and kept it up for a year and a half. But someone had to stay. Someone had to be aboard the Earth-return vehicle, to fix anything that went wrong, to relay communications to Earth, and to fire the bombs that would solve Pluto's one genuine mystery.

We never did solve that one. Where *does* Pluto get all that mass? The planet's a dozen times as dense as it has any right to be. We could have solved that with the bombs, the same way they solved the mystery of the makeup of the Earth, sometime in the last century. They mapped the patterns of earthquake ripples moving through the Earth's bulk. But those ripples were from natural causes, like the Krakatoa eruption. On Pluto the bombs would have done it better.

A bright star-sun blazes suddenly between two fangs of mountain. I wonder if they'll know the answers, when my vigil ends.

The sky jumps and steadies, and-

I'm looking east, out over the plain where we landed the ship. The plain and the mountains behind seem to be sinking like Atlantis: an illusion created by the flowing stars. We slide endlessly down the black sky, Jerome and I and the mired ship.

The Nerva-K behaved perfectly. We hovered for several minutes to melt our way through various layers of frozen gases and get ourselves something solid to land on. Condensing volatiles steamed around us and boiled below, so that we settled in a soft white glow of fog lit by the hydrogen flame.

Black wet ground appeared below the curve of the landing skirt. I let the ship drop carefully, carefully . . . and we touched.

It took us an hour to check the ship and get ready to go outside. But who would be first? This was no idle matter. Pluto would be the solar system's last outpost for most of future history, and the statue to the first man on Pluto would probably remain untarnished forever.

Jerome won the toss. All for the sake of a turning coin, Jerome's would be the first name in the history books. I remember the grin I forced! I wish I could force one now. He was laughing and talking of marble statues as he went through the lock.

There's irony in that, if you like that sort of thing.

I was screwing down my helmet when Jerome started shouting obscenities into the helmet mike. I cut the checklist short and followed him out.

One look told it all.

The black wet dirt beneath our landing skirt had been dirty ice, water ice mixed haphazardly with lighter gases and ordinary rock. The heat draining out of the Nerva jet had melted that ice. The

rocks within the ice had sunk, and so had the landing vehicle, so that when the water froze again it was halfway up the hull. Our landing craft was sunk solid in the ice.

We could have done some exploring before we tried to move the ship. When we called Sammy he suggested doing just that. But Sammy was up there in the Earth-return vehicle, and we were down here with our landing vehicle mired in the ice of another world.

We were terrified. Until we got clear we would be good for nothing, and we both knew it.

I wonder why I can't remember the fear.

We did have one chance. The landing vehicle was designed to move about on Pluto's surface; and so she had a skirt instead of landing jacks. Half a gravity of thrust would have given us a ground effect, safer and cheaper than using the ship like a ballistic missile. The landing skirt must have trapped gas underneath when the ship sank, leaving the Nerva-K engine in a bubble cavity.

We could melt our way out.

I know we were as careful as two terrified men could be. The heat rose in the Nerva-K, agonizingly slow. In flight there would have been a coolant effect as cold hydrogen fuel ran through the pile. We couldn't use that. But the environment of the motor was terribly cold. The two factors might compensate, or

Suddenly dials went wild. Something had cracked from the savage temperature differential. Jerome used the damper rods without effect. Maybe they'd melted. Maybe wiring had cracked, or resistors had become superconductors in the cold. Maybe the pile-but it doesn't matter now.

I wonder why I can't remember the fear.

Sunlight

And a logy, dreamy feeling. I'm conscious again. The same stars rise in formation over the same dark mountains.

Something heavy is nosing up against me. I feel its weight against my back and the backs of my legs. What is it? Why am I not terrified?

It slides around in front of me, -questing. It looks like a huge amoeba, shapeless and translucent, with darker bodies showing within it. I'd guess it's about my own weight.

Life on Pluto! But how? Superfluids? Helium 11 contaminated by

complex molecules? In that case the beast had best get moving; it will need shade come sunrise. Sunside temperature on Pluto is all of 50° Absolute.

No, come back! It's leaving, flowing down toward the splash crater. Did my thoughts send it away? Nonsense.

It probably didn't like the taste of me. It must be terribly slow, that I can watch it move. The beast is still visible, blurred because I can't look directly at it, moving downhill toward the landing vehicle and the tiny statue to the first man to die on Pluto.

After the fiasco with the Nerva-K, one of us had to go down and see how much damage had been done. That meant tunneling down with the flame of a jet backpack, then crawling under the landing skirt. We didn't talk about the implications. We were probably dead. The man who went down into the bubble cavity was even more probably dead; but what of it? Dead is dead.

I feel no guilt. I'd have gone myself if I'd lost the toss.

The Nerva-K had spewed fused bits of the fission pile all over the bubble cavity. We were trapped for good. Rather, I was trapped, and Jerome was dead. The bubble cavity was a hell of radiation.

Jerome had been swearing softly as he went in. He came out perfectly silent. He'd used up all the good words

on lighter matters, I think.

I remember I was crying, partly from grief and partly from fear. I remember that I kept my voice steady in spite of it. Jerome never knew. What he guessed is his own affair. He told me the situation, he told me goodbye, and then he strode out onto the ice and took off his helmet. A fuzzy white ball engulfed his head, exploded outward, then settled to the ground in microscopic snowflakes.

But all that seems infinitely remote. Jerome stands out there with his helmet clutched in his hands: a statue to himself, the first man on Pluto. A frost of recondensed moisture conceals his expression.

Sunrise. I hope the amoeba

That was wild. The sun stood poised for an instant, a white pointsource between twin peaks. Then it streaked upward-and the spinning sky jolted to a stop. No wonder I didn't catch it before. It happened so fast.

A horrible thought. What has happened to me could have happened to Jerome! I wonder- There was Sammy in the Earth-return vehicle, but he couldn't get down to me. I couldn't get up. The life system was in good order, but sooner or later I would freeze to death or run out of air.

I stayed with the landing vehicle about thirty hours, taking ice and soil samples, analyzing them, delivering the data to Sammy via laser beam; delivering also high-minded last messages, and feeling sorry for myself. On my trips outside I kept passing Jerome's statue. For a corpse, and one which has not been prettified by the post-surgical skills of an embalmer, he looks damn good. His frost-dusted skin is indistinguishable from marble, and his eyes are lifted toward the stars in poignant yearning. Each time I passed him I wondered how I would look when my turn came.

"You've got to find an oxygen layer," Sammy kept saying. Y.

"To keep you alive! Sooner or later they'll send a rescue ship. You can't give up now!"

I'd already given up. There was oxygen, but there was no such layer as Sammy kept hoping for. There were veins of oxygen mixed with other things, like veins of gold ore in rock. Too little, too finely distributed.

"Then use the water ice! That's only poetic justice, isn't it? You can get the oxygen out by electrolysis!"

But a rescue ship would take years. They'd have to build it from scratch, and redesign the landing vehicle too. Electrolysis takes power, and heat takes power. I had only the batteries.

Sooner or later I'd run out of power. Sammy couldn't see this. He was more desperate than I was. I didn't run out of last messages; I stopped sending them because they were driving Sammy crazy.

I passed Jerome's statue one time too many, and an idea came.

This is what comes of not wanting to die.

In Nevada, three billion miles from here, half a million corpses lie frozen in vaults surrounded by liquid nitrogen. Half a million dead men wait for an earthy resurrection, on the day medical science discovers how to unfreeze them safely, how to cure what was

killing each one of them, how to cure the additional damage done by ice crystals breaking cell walls all through their brains and bodies.

Half a million fools? But what choice did they have? They were dying.

I was dying.

A man can stay conscious for tens of seconds in vacuum. If I moved fast, I could get out of my suit in that time. Without that insulation to protect me, Pluto's black night would suck warmth from my body in seconds. At 50° Absolute, I'd stay in frozen storage until one version or another of the Day of Resurrection.

Sunlight-

-And stars. No sign of the big blob that found me so singularly tasteless yesterday. But I could be looking in the wrong direction.

I hope it got to cover.

I'm looking east, out over the splash plain. In my peripheral vision the ship looks unchanged and undamaged.

My suit lies beside me on the ice. I stand on a peak of black rock, poised in my silvered underwear, looking eternally out at the horizon. Before the cold touched my brain I found a last moment in which to assume a heroic stance. Go east, young man. Wouldn't you know I'd get my directions mixed? But the fog of my breathing-air hid everything, and I was moving in terrible haste.

Sammy Cross must be on his way home now. He'll tell them where I am.

Stars pour up from behind the mountains. The mountains and the splash plain and Jerome and I sink endlessly beneath the sky.

My corpse must be the coldest in history. Even the hopeful dead of Earth are only stored at liquid nitrogen temperatures. Pluto's night makes that look torrid, after the 50° Absolute heat of day seeps away into space.

A superconductor is what I am. Sunlight raises the temperature too high, switching me off like a damned machine at every dawn. But at night my nervous system becomes a superconductor. Currents flow; thoughts flow; sensations flow. Sluggishly. The one hundred and fifty-three hours of Pluto's rotation flash by in what feels like fifteen minutes. At that rate I can wait it out.

I stand as a statue and a viewpoint. No wonder I can't get emotional about anything. Water is a rock here, and my glands are contoured ice within me. But I feel sensations: the pull of gravity, the pain in my ears, the tug of vacuum over every square inch of my body. The vacuum will not boil my blood. But the tensions are frozen into the ice of me, and my nerves tell me so. I feel the wind whistling from my lips, like an exhalation of cigarette smoke.

This is what comes of not wanting to die. What a joke if I got my wish!

Do you suppose they'll find me? Pluto's small for a planet. For a place to get lost in, a small planet is all too large. But there's the ship.

Though it seems to be covered with frost. Vaporized gases recondensed on the hull. Gray-white on gray-white, a lump on a dish of refrozen ice. I could stand here forever waiting for them to pick my ship from its surroundings.

Stop that.

Sunlight-

Stars rolling up the sky. The same patterns, endlessly rolling up from the same points. Does Jerome's corpse live the same half-life I live now? He should have stripped, as I did. My God! I wish I'd thought to wipe the ice from his eyes!

I wish that superfluid blob would come back.

Damn. It's cold.