

In Saturn Time

by William Barton

On the Ides of October, 1974, LM pilot Nick Jensen rode across the Lunar regolith under a feature-less black sky not far from the north pole of the Moon. Almighty strange here, he thought, nothing like what we saw at the other six landing sites. Maybe a little bit like Taurus-Limow, but...

Long, long shadows cast across the surface, black lanes running off to infinity behind crater walls, every rock the origin of a dark finger that pointed away from the Sun, the Sun itself a glare right on the southern horizon. Post a big sign: Penumbra Starts Here. Scary when you looked around the sky, too. The Earth was nowhere in sight, had disappeared below the horizon as they'd descended the long hill away from the lander's touchdown site.

Orbiter pilot Ben Santori's voice crackled in his earphones, lightly fuzzed by static. "Inertial nav puts you at seven clicks."

Nick said, "Rog. Coming up on Black Hills terminator." Somewhere up in that flat black sky, *Apollo 21's* orbiting CSM *Nightwing* would be a silvery fleck. And somewhere behind them, back up the twin tracks the rover was leaving in the dust, in the direction of Peary's north rim mountain structure, Lunar Module *Flamebird* was a barely visible golden freckle on the gray landscape. Seven kilometers. A long walk back if this thing breaks down.

Goddamned lucky to be here. Eight long years in training since acceptance into the 1966 astronaut candidate pool. Watching men from the earlier intakes get their second and third flights, Alan Shepard on the Moon, Walter Cronkite jolly on TV... As Nixon canceled the Air Force's Manned Orbiting Laboratory, then the advanced Apollo Lunar program, then what little remained of Apollo Applications other than *Skylab*...

Nick glanced over at mission commander Stan Freeman in the rover's left-hand seat, craning his neck a little to see around the EVA helmet's visor rim. These outer hard-hat helmets with their gold visor structure were a nuisance. We should just go with the red cloth cover they rigged for the orbital EVAs. "Time."

"On time, on target." Freeman's voice came over the earphones clear and crisp, marked by his familiar Chicago accent. Freeman's luck was even greater, contaminating everything he touched. First black man in space. First black man on the Moon. Mission commander. Ph.D. in mechanical engineering. Darling of the press, interviewed by all and sundry only hours before liftoff.

Lucky for us. Young black moderate Jesse Jackson giving a speech in which he praised NASA, saying King would've been proud, telling them all how much King had liked *Star Trek*, giving the mission SCLC's blessing and, by extension, its approval of the whole revived space program.

They pulled up on the edge of shadow, near a low, hummocky ridge, the solar wind- and ejecta-eroded wall of a very old highland-type crater, unclipped their restraints and got out of the rover. Nick staggered slightly, bouncing inside his suit.

"Watch it."

"I'm all right. A little disoriented from the ride." Wouldn't matter if I fell down anyway. Just get the suit dirty. And, though stiff and clumsy and uncomfortable as hell, these Apollo EVA suits are nothing if not sturdy.

"All set?"

"Lead on, MacDuff." The newsmen interpreting for the home viewing audience would like that. Hardy, bluff, brave, uncomplicated men, our representatives in the Great Void. Nick smiled to himself. Then why do we keep having post-mission nervous breakdowns? It was getting to be a NASA in-joke. Go to the Moon. Then the nuthouse.

They walked into night.

"Dark here."

Nick said, "Yeah. Let's hold here for cooldown." Stepping into shadow, they'd just taken a 100K+ temperature drop, and another few steps might double that. Orbital sensing said the minimum temperature down inside the crater's permanent shadow was no more than 100K, theory said it might be as low as 40K. The suits *were* sturdy, but not invulnerable.

Lovely luminous night, night that... Nick flipped up the gold visor. "Jesus!"

"What..." Freeman flipped up his own visor and looked. "Oh..." Soft whisper of delight. Above them, the sky was flooded by the gentle radiance of a hundred million suns, distant, steady needles of light, white, pale blue, tawny red-orange here and there, the Milky Way like a river of golden dust.

Lucky to be here. All because Morris Udall and a determined band of party conservatives took the Democratic nomination away from the McGovernites' Children's Crusade, all because Nixon got a little paranoid and pulled that Watergate crap, crap that lost him the election.

President Udall standing up there on Inauguration Day, decreeing that U.S. military forces would turn their equipment over to the ARVN in situ and, evacuate Vietnam forthwith, "...because, right or wrong, it's time we were done with this sorry business..."

President Udall sitting in the Oval Office signing an executive order that canceled Nixon's space transportation system, reinstating Apollo and AAP, "...because we spent forty billion dollars acquiring this technology. Let's get the benefit of it before we go out and buy another one."

And, three weeks after that, astronaut trainee Nick Jensen had been assigned to the *Apollo 21* prime crew. *Apollo 17*, to the Moon, numbers 18 through 20 up to *Skylab 1*, then back to the Moon again. Ten more flights to the Moon were decreed, and another *Skylab*, and anywhere between three and seven freestanding AAP missions. After that? Who cares? This will keep us busy through 1981....

They walked on into the deeper darkness, picking over rocks, skirting small, shallow craters, taking samples, talking to Santori in orbit, back through the LM link to Mission Control.

"Okay, let's get the lights on." This was the other limiting factor. It was still seventy Kelvins here, not enough to redline the suits, not even close, but the power necessary to run this new lighting system would drain the backpack batteries in less than forty-five minutes. Ten minutes in here was what the profile called for.

Flame on. The crater bottom lit up around them, rock and dirt and dust and nothing else. Disappointing. "Over there." Nick pointed at what looked like a low ridge of black talus near the steeper southern wall of the depression.

He kneeled by it and prodded with his rock hammer. "Sintered solid, I guess, whatever it is."

"Crack off a sample and let's get out of here. This place is a bust." The commentators would be

talking about than one, all right....

Nick hit the rock a sharp blow with the hammer's pointed end, breaking a chunk loose. Flash of bright white. "Uh." He picked up the sample and turned it over. Opaque white rock, colored like chalk but hard like granite, no crystalline structure, covered by a thin black rind.

Freeman was suddenly kneeling beside him, reaching out, taking the piece, looking at it himself, watching light glint off the flat, exposed ice surface. "Well, well. Happy birthday, Nick."

Summer 1977. It was the best of times.... Period. No Dickensian dichotomies at all.

Nick Jensen floated cradled in the arms of his gas-powered astronaut maneuvering unit sixty meters from *Apollo 29's* CSM, silver and white cone-cylinder-cone hanging above Earth's bright limb. Beautiful day for an EVA. You could look straight down eight hundred kilometers on the brilliant blue Pacific, through thin stratus above the green hills of Hawaii. Not as good a view as the one from higher up. You couldn't *really* tell it was all one giant shield volcano, just like the bigger one on Mars, but still...

Viking 1. Still laughing about that badly tuned color camera. "Jeez, it looks just like Utah! Wait a minute, let's have a look at the color wheel...." Red sky at night, sailors' delight.

A red-helmeted head poked out of the command module's open hatch, and Amy Jordan's voice was sharp and distinct in his earphones. "Nick? We should be able to eyeball the Agena any time now."

"Copy that." She was a superb engineer, had had a decisive hand in designing the radio-telescope mission, but the media had ignored all that, going on and on and on about having this sweet young thing fly in the cramped confines of an Apollo capsule with two men, about how she'd have to do all her private business right in front of them....

Worth an exasperated sigh, an attempt at explanation: This is business. Important business, and we're all professionals, polite to each other... Order of the Dolphin, my ass...

Smirk, smirk; wink, wink. All business. Right. *Sure* it is, buddy...

Nick hit the hand controllers, compressed air stuttering behind his back, and did a slow turn. About ten meters away the completed radio telescope floated, a twenty-meter dish they'd brought up disassembled in the CSM's science bay, where a lunar mission would've carried camera packs and one of those little subsatellites. When they'd begun, just a week ago, it had been no more than a collection of wire mesh and cabling and electronic boxes. Now...

A lovely, shining flower of silver and black, floating in low Earth orbit, waiting for its life in space to begin. There. The Agena booster was just a scintilla of light on the edge of vision, out in black night. "I've got it. How far?"

Amy said, "Radar says ten clicks."

"Okay. Bring her in." Once they had this thing coupled to the telescope and got it on its way to GEO, they could go home.... Christ, I love being in space, but... two weeks packed into a cabin the size of a compact station wagon interior with two other people, people who smelled a little worse with each passing day.... That sort of thing could wear things fast.

Another voice in his ears, faintly tinged with a hiss of static, a little echoey from its trip through two ground links and one comsat: "*Apollo 29*, Mission Control."

"That you, Jake?"

"Roger." Jake Burnett was the third-shift capcom, hoping to get up here one of these days. He said, "Be advised the two-man crew of *Soyuz L-4* has successfully touched down on the edge of Oceanus Procellarum."

So, Bykovsky and Leonov on the Moon. "Took 'em long enough." And it would be a big help. Udall had won reelection, still supported the ongoing program, but the 1980 election would get here sooner or later, and once *Apollo 40* flew...

No one knew what would be coming after that.

Burnett said, "Here's hoping. We do need the competition." You could say things like that now; the press didn't listen to orbital work chit-chat anymore.

"Yeah. Wonder if *they* know that?"

"Probably better than we do."

Amy Jordan said, "Guys? Coming up on Agena rendezvous in four minutes. We'd better get onto the business at hand."

Business. All business.

He said, "Roger. Copy that." Get to work.

Late spring 1980.

Nick stood on the grass beside Mosquito Inlet not far from the VIP Viewing Stand, just across the big ditch from the Press Site, waiting, sweating a little in the hot Florida sun. Always makes me itch a little bit.... Reporters seldom came for the launches anymore, big countdown clock tallying away for no one sometimes, even when it was a trip to the Moon.

Moon? Ho-hum. Seen one moon, seen 'em all. Let us know when you're ready for Mars. Or, better still, the stars, just like on TV....

Out in force today though, clogging the press bleachers, forming long, yackety lines by the washroom doors, crowding the wagons of the hot dog vendors they'd let in for the day.

Nick looked at his watch, then across the inlet, up the length of the causeway to the launch site. Above the vehicle there was still a wisp of smoky vapor, but they'd be shutting the pressure bleed and toff valves in a few minutes, going into the final countdown.

The Saturn 5M was not a pretty vehicle. Not pretty at all. Our future, though. You couldn't even see the core Saturn 5 vehicle, S-ID and S-II stages hidden by four 360-inch segmented-solid strap-on boosters. All you could see was the S-VB poking out the top, a modified S-II stage with five restartable J-2s that had takes the place of the old S-IVB, surmounted by an odd-looking, forty-foot-diameter hammerhead payload shroud.

Could be a big mistake, using the first test vehicle to fly a real mission. An important mission. One of those never-flown field joints springs a leak at altitude, maybe right after max-Q, we'll see a pretty big up there....

Well. At least it was unmanned. It's only money.

Nick looked around again, at the sprinkling of VIPs who'd come to see the thing off. Outgoing

President Udall standing with D.C. Senator Jesse Jackson and Vice President Mondale, Udall's designated successor. President come to see his last big space-related decision come to fruition.

Fritz Mondale looking away, hardly interested in what was going on, just knowing he had to show the flag as he steadily slipped in the polls. Primaries not going too well. There's never going to be a Present Mondale. Are we in deep shit?

He looked at the slender man at his side. Governor Brown, standing next to Gene Roddenberry, had a pair of binoculars pressed to his eyes, looking intently toward the pad, teeth showing in what looked like a little bit of a grin, or maybe just a glare-squint grimace. Hard to tell with this... very strange dude.

Watching the governor walk around with Linda Ronstadt this morning, he'd tried to listen in. What would *I* have said, with a little cutie like that in my clutches? Telling her all about the vast resources we'd find out in the Asteroid Belt. How it would postpone the coming world crisis for centuries. Maybe that's what I would've said, too. Right.

So this is, just maybe, the Democratic front-runner, some little ex-seminarian determinedly levering the fat cats' hands off the wheels of power. Political journalists licking their chops. Because, on the other side of the aisle, it was looking to be Ronald Reagan. Battle of the Californians, they said. Or better still, Moonbeam versus Bonzo.

Jesus Christ.

Out on the pad, the vehicle had stopped smoking, thin haze of white frost evaporating away in the sun. Nick said, "Thirty seconds, Governor.."

Brown pulled the binoculars off his face, leaving little red rings where he'd been pressing them in too hard. "Okay, Nick. You promise me this thing's going to work?" Thin grin, sardonic, not a man who said things by accident.

Nick nodded slowly. "Well. 'Four *neins*,' Governor."

Brown grinned wider, recognizing the reference. "We'll see," he said, putting the binoculars back to his eyes. "Call me Jerry."

The loudspeaker said, "T minus ten seconds. Sustainer core ignition..." Out on the pad, a glare of orange light down in the flame trough, a thick boil of greasy black smoke as high-grade jet aviation fuel burned in liquid oxygen. Silence. "...three, two, one... solids..."

A huge burst of white smoke, blowing the black smoke away, clouds forming, yellow fire boiling crazily in their depths.

Loudspeaker: "Liftoff..."

The Saturn 5M bounded off the pad, then seemed to pause, staggering visibly, Nick's breath trapped in his chest, heart pounding. Oh, God.... It seemed to take hold of itself, straighten visibly, then climb into the sky, climb, trailed by a thick column of gray-white smoke, smoke that seemed to grow organically from the base of the rocket....

Crackling roar, sound having crossed the intervening three miles, a few brief seconds of familiar F-1 fire, then the hard *bump-ROAR* of the solid lighting, some almighty powerful beating on his chest, trying to ash him backward, sixteen million pounds of thrust from the four strap-on boosters, another seven and a half million from the liquid fuel engines, seven hundred thousand pounds of payload headed for low Earth orbit.

Nick glanced over at the governor. Jerry Brown's head was tipped back, following the Moonbase as it left for its new home not far from Amundsen Crater and the south pole of the Moon. He had Roddenberry by the arm, shaking the producer hard. And he was laughing out loud.

Nick looked back at the Saturn 5M, listened to its diminishing thunder, and thought, Maybe President Brown will want to give that little cutie an asteroid for her birthday. And, just maybe, we can talk him into funding the S-VI nuclear stage we'd like to stick on this thing, calling it the Saturn 5N. Just maybe.

What was it the governor had said? "We'll see..."

In the late summer of 1984, Nick was back on the Moon, walking the dusty plain not far from Lunar Poor Station 1, not quite relishing the job of escorting the VIP. Not quite. But the old man had proven to be an interesting enough character, making the professional astronauts want to like him, despite their irritation with the whole program.

A journalist in space was bad enough, but sending one of these bastards to the Moon? It was an order of magnitude more outrageous than putting that teacher in space aboard *Skylab 3*, wasting an Apollo Transport flight just to put her up there for two weeks. Now this, wasting a flight to the Moon...

But it happened as President Brown decreed, probably just part of his reelection strategy.

They were setting up at what appeared to be a strategic location, the base down-Sun, a collection of half-buried modules, rovers parked here and there, solar collectors sticking up like silver radar dishes against a dramatic backdrop, the low, rounded hills of a crater ringwall, looking for all the world like some denuded and dead Appalachian range.

And the old man was the most useful member of the EVA team just now. He knew just how to set up the cameras, which connectors to plug in where, how to lay the cables so no one would trip over them, issuing commands in a calm, quiet voice....

That same reassuring voice of wisdom I've been hearing since I was a kid. And you know that's why Brown picked him. The President's one smart cookie, all right. Dole doesn't have a chance.

It was a smart choice, but we were all against it, especially when we found out who was going. Come *on*... a man his age up here? But he's pushing *seventy!* D'you realize what it's like, three fucking days stuffed inside the cabin of a five-man Apollo Transport?

Sure, he'll be all right at Moonbase, but what about the *trip*?

But the oldest professional astronaut still on flight status is sixty-three now. You want us to can him? No, but... How about you, Nick? Going to be forty-four this fall. When you think we should retire you?

Vision of the upcoming Mars mission crew assignments. Um. Well, I sorts hoped I had a few good years left in me....

And he'd been okay on the trip up after all. Keeping his hands off the hardware, looking out the window, doing his standups. . . and suffering not a trace of space sickness, while the flight's other rookie floated in his acceleration couch, retching quietly....

And, sitting there on the pad, just as T minus thirty seconds was called, he'd chuckled softly and said, "This kinds reminds me of Paris..."

Uh. *Paris*.

"Sure. I went in with the Airborne. Jumped with them, carrying a goddamn *typewriter*..."

Then, sitting on the Extended LM's floor, as required, face far below the level of the window while the engine rumbled and we dropped toward touchdown, he'd whipped out a kid's folding cardboard periscope, the kind of thing you could still buy for 98 cents, holding it up so he could see out. *That* won us over, a kind of guileless astronautical ingenuity, like smuggling a ham sandwich onto the first space flight...

Now, the old man came bouncing gently over. "You all set?"

"Yes, sir. Just tell me where to stand."

The old man looked around, quickly, professional, glancing briefly at the camera, then scuffed an "X" in the dust. "On your mark, Nick. Now open your faceshield so the folks at home can see that pretty face." The old man grinned at him from under his trademark mustache. "And please. Call me Walter..."

The red light came on then, and the old man turned to face the world. "August 14, 1984," he said. "Good evening. This is Walter Cronkite reporting to you live from the surface of the Moon..."

May 1988.

Nick sat, sort of, in front of the telefax console in the science module, toes tucked into foot restraints, seatbelt across his lap. A little unsteady, hard to keep the mouse cursor positioned on the little white

<NEXT> Button, but... *click-click*.

Breathtaking. Unbelievable. *Voyager 3's* Io lander had sent back a steady stream of images, almost in real time as it dropped out of orbit, actually passing through the thin, hazy umbrella-plume of an erupting sulfur volcano, taking samples on its way to the surface.

Click-click. On the surface now, looking out across a rolling, low-relief yellow plain. In the distance, the eruption was a faint, almost invisible inverted cone against a featureless black sky.

Click-click. Christ... The camera had panned around, deliberately tilted up by the programmers, looking just where they figured...

Fat, banded Jupiter, a sullen orange crescent lying on its side, sun beyond it a dimmed-out spark. There. That little bit of crud had to be Amalthea, and...

Image of myself out on the surface of that moon, clad in an Apollo moonsuit, bounding across the dusty yellow plains, Jupiter in the sky above me, and the other moons and...

Nick shook his head slowly. Not in my lifetime, anyway. Not until we work out a technology to shield against the ambient radiation. By the time we have *that*, we'll be thinking about Bussard ramjets and what *star* we'll be wanting to visit first. I wish...

He smiled to himself. Listen to me, wishing for the stars. Sudden memory of himself as a teenager, a senior in high school, turning on the TV and hearing Frank McGee discuss the significance of *Sputnik*. And hearing some expert say that, just maybe, some small child, a toddler perhaps, would one day walk on the Moon. Incredible. And, of course, the first man who did walk on the Moon was already an adult, already flying jet aircraft...

He pulled the mouse cursor up to the menu bar and popped open the SELECTION pulldown, clicked on "V-4, G-IV Lander." <NEXT>—The surface of Callisto, seen close up, was almost

indistinguishable from the cratered highlands of the Earth's moon. Outside Jupiter's Van Allen belts. Just maybe, someone will go there soon....

Maybe. Maybe. But no one knew what Jesse Jackson would do if he won the election this fall. Continue the program? Cancel it? Maybe. But then, no one knew what would happen if the Republicans somehow took over either. J. Danforth Quayle? Christ...

He sighed and clicked the EXIT icon, docked the mouse in its little monitor-side pocket, and unhooked from the chair. This is all very nice, but there's work to be done. He floated out through the forward hatch, through the node and into the command module, where Jake Burnett was holding down the fort.

"About time you got up here, pal. I've *really* got to pee!"

Nick smiled. "Sorry. I keep looking at those damned *Voyager* photos..."

Jake unhooked himself from the acceleration couch and floated above the control console, essentially filling the window. He grinned and nodded. "You and me both. Wouldn't that be a kick, going to fucking *Jupiter*?"

"Yeah."

When he was gone, Nick pulled himself down in the chair, strapped in and relaxed, scanning the CRT screens and LED readouts, making sure God was in his Heaven and all was right with the world. Okay. Then he sat back to stare out the window and daydream.

Jupiter, for Christ's sake...

But this room, here, now, was filled with soft, ruddy light, light reflected from the surface of a dull red world rolling slowly by below. Okay, coming up on it....

Valles Marineris slid over the horizon, an enormous gash in the side of Mars, as if some giant rock had struck the planet a glancing blow, cutting it open, threatening to spill its guts into the void, looking for all the world like an unsutured wound.

And in forty-eight hours I'll be down there. Butterflies fluttered briefly, exploring the far reaches of his intestines. Day after tomorrow and we'll be setting down on the north rim of Coprates. Me, Jake, and Amy making the first manned touchdown. Then. Then. *Ares* carried five additional disposable aeroshields, enough fuel for the lander to set down six times, at six different sites. And each crew member would get one landing, until all eighteen of them had been down.

And me, Mission Commander. Piloting the first lander, climbing down the ladder first.

I guess, he thought, watching the terminator come up, watching a Martian sunset come over the horizon, I better start thinking about what I'm going to say.

Though the late winter and early spring of 1993 had been incredibly wet, what with the Big Snow, then one rainstorm band after another sweeping across the country, west to east, on toward summer the weather stabilized, blue skies dominating the southeast, Florida warming up nicely. And, on a fine, sunny June morning, Nick Jensen stood atop the VAB with his binoculars, watching and waiting.

Sitting on the pad, it didn't look like much after a decade and more of the big 5Ms and Ns, but here it was, the Saturn 5R and its... payload? Well, not quite, but the term did sort of fit the new second stage. Inspecting it through the binoculars, he couldn't help but feel a resurgence of the anger that had boiled in

him for the past couple of years.

Just on the losing side, that's all. Regroup, get on to the next thing. The worst mistake we can all make is to continue an argument after one side has claimed victory. Bad enough having all those fights in front of President Jackson, whose support for the space program seemed tepid at best after eight years of Brown telling us, "Go for it."

But we should've built the SSTO, the demonstrator at least.... Built it up out of the old S-IVB stages we've got sitting around in storage because there're no more Saturn 5As for them to ride. Aerospike engine, gas-layer reentry shield, a *real* spaceship at last...

But we did lose the argument.

And they built this thing instead.

So, good idea or bad, there it is.

Out on refurbished Pad 39A, the Saturn 5R was a highly modified S-I stage, the so-called S-IG, with those redesigned 90/110 throttled F-IR engines, slightly lengthened tankage because the... second stage... was a lot lighter than the S-II/S-IVB/Apollo combination had been... and wings. Big bumps delta wings and vertical stabilizer. Big bumps on the fourth side, pods where the landing skids folded away.

A reusable S-I stage, radio-controlled glide-back booster...

Waste of time, we said. Waste of money. Spend the five billion dollars designing something new, something with up-to-date hardware: Dammit, this thing is based on 1950's technology!

But its designers just laughed, then turned to a puzzled President Jackson and said, 1930's, really; this thing's not so much more than a giant V-2, after all. Getting our money's worth, all right.

And, on top of it, something that looked like a cross between an X-15 and a fat-bodied cargo plane, Max Faget's long-championed "straight-wing orbiter," white-painted bird, *Star Spear* in sleek black letters down the side, NASA meatball logo on the tail empennage.

Twenty thousand pounds payload seems like nothing compared to the seven hundred thousand-plus you can loft with a 5M. On the other hand, it's two hundred dollars a pound compared to fifteen hundred...

There.

Out on the pad, the vapor stopped drifting, the count went down, and the engines lit, boil of black smoke, red-orange flame down the deflector channels, and the first element of the Space Transportation System lifted off, twenty-four years after it'd first been proposed, seventeen years behind schedule.

Long yellow-white flame licking around the launch tower, kerosene fire, lifting six crew and a cargo of consumables up to the space station, because old Max knew his ship would fly. Nick took the binoculars away from his eyes and watched it go, spaceship turning into a bright speck far out over the ocean.

Flicker-flash. Staging. Bright white fleck of the orbiter, running on its two hydrogen-powered M-1 engines, separating, headed for orbit. In a little while, if everything went okay, the first stage would come scraping down on the new runway. Then we'll see who's gotten their money's worth....

Christ. It's up, it's flying, forget about it. Plenty of politicking to be done. Hell, I'm only fifty-two. I'll

have to get busy if I want to go... someplace.

And then it was the fall of 2001, just four days after Nick Jensen's sixty-first birthday.

Sitting bunched together in *Discovery's* control room, the six of them were suited up, breath hissing in respirator valves, softly, gently, the breathing that you did while you waited, excited, trying to stay calm. No more voices in the earphones, people just waiting now. Mission Control, over an hour away by radio, wouldn't know whether they lived or died until they were already here or gone.

Our final gasps, maybe, over the link, as we fall and fall and fry.

Up on the big HDTV monitor, Jupiter was a plump orange ball, almost featureless because they had the mag tuned to zero—keep it real, we said, like it was a window—Callisto a bright white ball, not quite full, phase the same as the mother planet's.

It seems, he thought, just as bright as the Moon. Albedo very different, though; nothing to compare it to but Jupiter and the other Galilean moons. Not like looking back a few days after interplanetary injection, on the way to Mars, then an asteroid, then here, Luna just a dim piece of old rock compared to bright white and blue shining Earth.

Not even thirty years since I lay on my back, stuffed into the right-hand seat of that old Apollo capsule, and waited for them to finish counting down, waited for them to send me to the Moon. Now...

He glanced over at Amy Jordan, the ship's other oldster, smiled at her through the faceplate. She reached out and patted the back of his gloved hand, just a movement, unfeeling, and gestured at the display console. "T minus five minutes..."

"Five minutes." One hand on the emergency switch, but the computer would handle everything, had been doing so, working just fine for the eleven months of the voyage out. "Everyone okay?"

Chorus of whispered assents from the four youngsters in the room. "*Challenger?*"

From the other ship, Jill Rodriguez's voice crackled over the radio link. "Engine precharge seems to be going well."

Seems. Soft fuzz of static in her voice, picking up interference from Jupiter's outer radiation belts. "Three minutes."

Seems. But if the main engines fail to fire, we'll fall through those radiation belts and die. Be dead just a few minutes from now. And these empty ships will go flying off into space, whipped by Jupiter's gravity, never to be seen again....

Well, no. That's not right. The ships' electronics will survive the trip. Maybe the engineers on Earth will get things fixed, get us headed on a homeward-bound trajectory, get us back into Earth orbit. And we can be buried beside our friends in only three or four years.

"One minute. Engine precharge complete."

No. I'd rather not go home again, if that happens. Stay out here in the cold and dark...

This is my last flight. I'll be sixty-five by the time we get home. Can't keep cheating the flight surgeon forever....

"Three, two, one..."

The engines lit, shoving them all back into their seats, dropping *Discovery* and *Challenger* into orbit around Callisto.

Three old men, sitting on a tropical veranda, Indian Ocean breezes blowing in off the grounds, were watching NASA Select, pulling the signal directly from one of the old TDRSS satellites through the little receiver disk on the roof. Jupiter was hanging there in the big HD monitor, crisp orange, more like a view out some magic spaceship window than a mere TV image, Callisto hanging in front of it, dull yellow-white.

Time advanced and the image moved, bright face of Callisto narrowing as the ship moved closer, sliding under the pole, then going entirely black, growing very large, eclipsing the Sun. Over in one corner of the veranda, an automatic camera blinked, filming them discreetly. Just in case someone might be interested.

Walter said, "Remember when we covered *Apollo 11* together? It seems so long, ago, now."

Wally said, "Yeah. But it's only been thirty-two years. Nod long at all. Barely time for our grandchildren to grow up."

"You ever regret getting out of the program after *Apollo 7*?"

Wally shrugged, watching the screen carefully, not looking at the camera. "Sometimes. But I was already middle-aged, back then. Time to let the younger guys fly."

"Jensen's in his sixties..."

"Sure. And Al Shepard went to the Moon. We do what we have to do. Make our choices..."

It was pitch-black on the monitor now, nothing visible there, though they knew the dark side of Callisto would be passing below as the ship moved on toward its orbital insertion burn. Walter looked at his watch and said "Any second now..."

Arthur picked up his universal household system remote and hefted it lightly, looking at the TV screen. "I wish," he said, "that I could be there myself, but..." He thumbed one of the contacts and, from somewhere inside the house, *Thus Spake Zarathustra* began to play. "This, I suppose, will have to do."

Cronkite and Schirra smiled for the camera, and, on TV, the Sun began rising over Callisto's dark horizon.