

The Big Empty

By E. S. Strout MD

An intriguing puzzle arises when we consider that the laws of physics treat matter and antimatter almost symmetrically. Why is it that the stars, dust and everything else we observe are made of matter? If the cosmos began with equal amounts of matter and antimatter, where is the antimatter?

Scientific American Website

Otter: Let's do it.

D-Day: Ramming speed!

National Lampoon's Animal House

1

Astropilot Colonel Alan Carstairs unfolded himself from the pilot's seat of the survey starship CARL SAGAN. He yawned, then stretched till his lumbar vertebrae gave gratifying pops.

He nudged the young woman curled up on the narrow bunk abutting the cockpit.

"0400 hours, Lieutenant. Your turn at the wheel."

Caitlin O'keefe sat up, rubbed her eyes. "Already, skip? Seems like I just dozed off."

She tucked flaming red tresses behind an ear. “Gimme a sec, boss, okay? I must look a mess.”

Carstairs handed her a small foil-wrapped packet.

“Bon appetit, partner. Finest galactic cuisine. Your required hi-carb boost.”

O’Keefe took a bite, made a face. “Fake caramel-walnut. Yech. Want the rest of this, Colonel?”

A grin. “I’ll pass. Here’s your update. We’re entering sector Bravo-858. All systems nominal. Sublight engines at monitoring speed.”

“You coward.” O’Keefe grimaced, then swallowed the remainder of the noxious power bar.

“Large pepperoni pizza when we get back, and you don’t get one bite.”

She assumed the copilot seat, adjusted its contour, then tapped her Space Corps password into the command computer.

“Anything on long range scans?”

“Small asteroid in our six. Half a light year, moving away.”

The sudden explosive burst of rainbow-hued light was blinding. Colonel Carstairs bounced from the bunk, shielded his eyes.

“What the hell was that, Lieutenant?”

“Unknown, Colonel. No stars approaching supernova in Bravo-858. Scanning now.”

A sudden audio alarm sounded:

PROXIMITY ALERT. ANOMALY BEARING DUE CELESTIAL NORTH.

“Gotta be a glitch, Lieutenant,” Carstairs said.

“The galactic rim is the Big Empty. No planetary system within a hundred fifty-thousand light years. What’s to collide with?”

He punched the ALARM CANCEL switch.

“Damn, it’s bright out there. Fix it, please?”

O’Keefe tapped VIEWPORT POLARIZE. The radiance faded to sepia overtones.

“Running close range scans per threat evaluation protocol.”

Carstairs reached for the alarm abort, but stopped, gloved hand poised in midair.

“Good God. Where did that come from?”

O’Keefe gasped in a double lungful of recycled air.

“Spaceship! That sucker is huge. No way we could have missed it. Turning port 350 degrees to avoid. Sublight engines to full stop. Range to anomaly two hundred meters. Whew!”

“Nice reaction, Lieutenant. That flash must have overrode the scanners. Let’s find out who she belongs to.”

O’Keefe brushed wayward curls from her face and scrolled known starship configurations.

“Rats. I don’t have a match, sir. Nothing close. I’ve got a good video chip.”

Carstairs booted up the tachyon COMM transmitter.

“Right. Sending now. Maybe Space Corps knows something we don’t.”

3.

“It’s a monster, General Shaw. The video won’t give you a good sense of magnitude. Cylindrical, at least half a kilo long, fifty meters wide. Tapered forward, series of baffles aft. Some undecipherable hull graphics.”

“Are they carrying?”

“No armament that I can identify, sir. It’s just sitting there. No apparent hostile intent.”

“Can you see anything inside?”

“Lieutenant O’Keefe tried to LaserVision ‘em through that big forward viewport but it was blocked. Bioscans are equivocal.”

“Have you tried communicating?”

“We’ve run through all epsilon and theta-band frequencies. Nothing. No luck with FlashCom either. We even rigged up some old radio carrier band frequencies. Zero. Zilch. Nada.”

“Keep trying. Can you say their propulsion system?”

“Negative, sir. Just that series of baffles aft.”

“Interesting. Any unusual grav readings?”

“We’re having some fluctuations on our artificial gravity monitors.”

“Those would explain a lot. Our propulsion people were working on a gravity drive system a couple of years back. They quit after two prototypes failed initial tests.”

“So these folks have it. But who are they?”

“Unknown. Let me get back to you after I clue in the Joint Chiefs. They may have something ultra-classified that we’re not privy to.”

4.

“See if you can sneak us in a bit, Lieutenant. There’s some small pitting defects in the alien’s hull I didn’t notice before.”

She hesitated. “Suppose they have some weird weapons technology? What if we piss ’em off?”

“Not to worry. I’ve got the positron drive cycling in standby in case we have to split.”

“Right, sir. Maneuvering thrusters on line.”

The SAGAN inched closer. “I see what you mean, skipper. Deep pitting in several areas. Maybe they’ve got a shield problem.”

“Possible. But there were no hull defects before. Let’s check. Back-skip the video.”

“You’re right, sir. Smooth as single-malt Glenlivet. They must have some strange attraction for micrometeorites.”

5.

“SAGAN, this is General Shaw. Joint Chiefs drew a blank, AI. Space Corps Command wants you to initiate first contact. Continue communication efforts. EVA with close inspection for entry ports.”

“General, their hull is deteriorating. Large areas of pitting. Unknown cause. SAGAN has no such defects. I believe we should back off and observe. Wait one . . . “

Carstairs covered his eyes as another bright flash overwhelmed the polarized viewport. “There goes another one.”

“This is from the top, AI. They’ve overruled me. Give me hourly updates. Continuous video. Shaw out.”

O’Keefe’s eyes glistened, wide with excitement. She raised clasped fists over her head.

“EVA. Oh wow! First contact. I’ll go, Colonel. This is one of the reasons I joined Space Corps.”

“Hmpf. More guts than brains, Lieutenant. What do you want etched on your tombstone?”

“I’ll split the first contact bonus with you, skipper. A million Solar Bucks.”

“Carry a sidearm.”

O'Keefe snapped the EVA helmet faceplate down. "Testing intercom, sir. How do you read?"

He gave her a thumbs-up. "Five by five. Got your tether attached?"

A thumb-to-nose gesture. "I'm four-point-oh on EVA simulations, Colonel Carstairs, boss, sir. Depressurize the airlock, please."

She floated to SAGAN's forward viewport, gave Carstairs a wave, did a gymnastic somersault. "CO2 thrusters A-OK. I'll look for entrance-exit hatches first, then check viewports."

"Roger that."

Another flash of diffuse brilliance, then a rolling motion rocked the SAGAN. "Whoa! Good thing I had the faceplate polarized. What was that, sir? I felt it out here."

"Some kind of spacequake, Lieutenant. Instruments are registering seismic activity concurrent with light event. Recommend terminating EVA."

"Noted, sir. Please don't. Gotta take a closeup look at this big lady. I'm okay. All systems in the green."

"Approved against better judgement. But one more cosmic event like that and you're back here on the double."

“Copy, sir. How about reeling me out another hundred meters of tether? This could take a while.”

“I want running commentary and video. And no closer than twenty-five meters without my okay.”

“No problemo, skip. Video on.”

7.

“Surface looks metallic with some crystalline elements. You should get a load of this, sir. The pitting is taking place as we speak. Multiple sites, each accompanied by a small flash, like a little spark. Some areas are worse than others, with defects several centimeters deep. I’ll get some samples.”

“Negative! That’s an order, Lieutenant. Check that big forward viewport. Try medium range scan.”

“Copy. It’s oval, about four meters across. Opaque. LaserVision on. Wait one, Think I’ve got something. Moving closer. Stand by.”

A sudden burst of static.

“Oh, Christ . . .”

The spacesuited figure of Lieutenant O’Keefe floated away from the alien craft with inexorable slowness, twisting, tangling in loose coils of tether.

“Lieutenant O’Keefe! Caitlin! Respond now, please.”

Silence.

“Status please, Caitlin. Are you okay?”

O’Keefe’s vital signs on the biomonitors remained in the green.

“She’s alive. Thank you, God. Reeling you in, Caitlin. Hang on.”

Carstairs removed her helmet. Her eyes were wide and staring. Pulse and respiration remained normal.

He laid her gently on a deceleration couch, brushed tangled locks from her moist forehead.

“You’re okay now, Caitlin. Back on board SAGAN. This is Alan, your favorite Astropilot.”

No response.

Carstairs grabbed his seatback for balance as brilliant light filled the cockpit, overwhelming the polarized viewport. A major seismic event rocked the small craft, rattling loose gear to the deck. When he looked back, O’Keefe was sitting bolt upright, blinking, shaking her head. Her stare was vacant.

“Caitlin, please talk to me.”

8.

“We are speaking through Lieutenant O’Keefe’s cerebral speech centers and laryngeal vocalization capability. We occupy the spaceship off your starboard quarter.”

Carstairs stared in disbelief. “Lieutenant O’Keefe, no time for foolishness. Assume your station.”

She pressed a fingertip to her lips, then raised a hand as if in greeting.

“There is not much time. You must listen.”

“Nice try, Lieutenant. Now what the hell went wrong out there?”

Carstairs backed away, shielding his face with a hand as a piercing green flash from O’Keefe’s eyes blinded him.

“We are not engaging in humor, Colonel Carstairs.”

“Who are you?” he gasped.

“The name of our race is of no consequence. We come from the other side of the Great Barrier. A gross miscalculation.”

“Lieutenant O’Keefe, is she . . .?”

“She will have no memory of our intrusion.”

“You have gravity drive . . .?”

“That is beyond the grasp of your technological expertise. It is of no concern now. You have noticed the hull deterioration of this vessel, yes?”

“We thought it was micrometeorites.”

“Every elemental particle striking our hull destroys an atom of the metal. If you had attempted to board us, you would have been destroyed. Our matter is antimatter to you, as yours is to us. The tear we have created is not confined to this quadrant of the Great Barrier. It will spread.”

“Why are you here?”

“We wanted to see what was beyond the rim. We ignored the disappearance of our experimental drones. They were too small to affect the space-time continuum, but this ship has created a rift. The light and seismic events you are experiencing are a window into our universe. We are doomed, as are you.”

“Then we have no recourse?”

“None. Pray to whatever gods you worship. Goodbye.”

The alien ship vanished in a cloud of silvery vapor and stroboscopic flashes. Radiation readings hit the top, then stabilized. The SAGAN cartwheeled in the blast. Carstairs floated in the cockpit as artificial gravity failed. He held O’Keefe cushioned against his chest.

Flutter of eyelids and a coy grin. “Hi Alan.”

“Caitlin. Thank God you’re back.”

They settled to the deck as the grav system rebooted. “Why am I dressed for EVA? The alien craft. Did I . . .?”

“Gone. Antimatter explosion. You were EVA for about an hour, lost contact. They were in your brain, speaking in your voice.”

“Telepaths?” She pressed fingertips against her temples and massaged. “Can’t remember a thing, but I’ve got one bitch of a headache.”

Lieutenant O’Keefe sat in stunned, gaping silence as Carstairs gave her the narrative.

“Antimatter. Good God. If I’d have touched that ship . . .” She hugged herself to control the tremors.

“I got LaserVision. Anything?”

“Only static.”

“And here we sit at the edge of the Big Empty. Right in the middle of a cosmic tear with their deadly universe leaking in. Let’s get outta here, Alan.”

“FTL drive on line. Strapped in, Lieutenant?”

8.

“General Shaw here, Al. What’s with the light show?”

“You can see it, sir?”

“Lights up the whole damn sky. Weird radiation readings. Cosmic particles, unknown type. Seismic tremors. Off-world stations reporting similar. Space Corps on red alert. Alliance folks going nuts. What can I tell ‘em?”

There were seconds of dead silence when Carstairs concluded his update. The General’s voice was low, restrained, betraying shock. “What’s your status, Colonel?”

“Sustaining severe buffeting. Light phenomenon cuts right through our polarized screens set at maximum. We’re powered up, sir.”

“Any antimatter effects?”

“Not as yet.”

“Colonel, you are to remain on station. Top priority. Keep the COMM channel open. Fifteen minute updates. Sorry about this, but it’s your sector. I’m meeting with the astrophysics people in five. Stand by.”

9.

“Screw this,” O’Keefe grumbled. “I’m for shagging ass. Take my chances with a court-martial. Beats the heck out of my molecules being disassembled.”

“We’re volunteers, Caitlin . . . Hold on.”

A cosmic tornado of light and sound engulfed the SAGAN while its crew scrambled for handholds. The cockpit went dark, illuminated only by faint emergency lighting.

“Oh, no. We’re dead,” O’Keefe whispered.

“Not yet, Lieutenant. We’ve still got NAV. Location, please?”

O’Keefe scrolled star charts. “We’re a hundred light years from our previous location. An approximation, sir.”

“That’s not too precise, Lieutenant.”

“You’d better look at this, Alan. NAV computer can’t find a match. It’s like the whole damn universe is coming apart. Every time we get one of those sound and light shows,

the configurations get more scrambled.”

Their faces were ashen in the pale glow from the cockpit instrument displays.

“Oh-oh. Look at this, sir. Port beam shield monitor.”

“Pitting defects. Antimatter, Lieutenant, we’re outta here. Strap in.”

Carstairs punched POSITRON FTL START.

No response.

“No cold fusion boost. Fuel cells read empty. Lieutenant?”

“Impossible, sir. Checked ‘em out myself. Enough for another fifty jumps. Must be an indicator malfunction. Let me pull up the internal monitors.”

“All gone. Tritium reserve tanks got zapped. We . . .” She was interrupted by a loud klaxon and red emergency flashers.

HULL BREACH. DON EVA GEAR NOW.

10.

“Do we have sublight engines?”

“Couple of seconds burst only.”

“I’d be grateful for any suggestions, Caitlin.”

“I took a few basic subatomic particle physics courses at the Academy, sir. Suppose we drive through the rift? We’re antimatter to the alien universe. Maybe we could equalize its effect.”

“You mean, like stitch up the tear?”

“Something like that, sir. Farfetched, right?”

“I don’t have any better ideas.”

She grabbed Carstairs in a tight embrace. “Let’s go for it, partner.”

“You wanted to be a hero, Caitlin. Head for that big flare. Steer ten degrees starboard.”

“Damn. There goes our million Solar Bucks.”

“Ramming speed, Lieutenant.”

11.

“Colonel Carstairs, General Shaw here. Our situation has stabilized. Cosmic phenomena have ceased. Radiation readings nominal. Star configurations returning to normal. We’re back to DefCon four. Well done. Commendations forthcoming. Return to base for

debriefing.”

“Colonel Carstairs? Lieutenant O’Keefe? Respond, please.”

The End