

Stability

by A. BERTRAM CHANDLER

Balance is important in modern planes—but a serious misbalance in something trying to balance on a jet of flaming gas could be more than merely annoying!

The port captain snatched the gold-cruled cap from his head, dashed it to the gleamingly spotless deck of the control tower. With the crest of white hair standing stiffly erect above the scarlet face, the plump body in the glittering uniform, he looked like an angry cockatoo. And his voice, when at last he found words, heightened his resemblance to that unmelodious bird. "Why don't they come in?" he demanded shrilly of the world at large. "Why don't they come in?" Then, to the girl at the R/T— "Why don't they answer?"

"Search me," replied the blonde wearily. "Sir," she added as an afterthought. The wisps of straw-colored hair hanging over her face made her look as tired as she sounded. "Perhaps—" she lay back in her chair and looked lazily up at the big screen upon which, against the blue-black background of the upper stratosphere, an object compounded of gleaming metal and dazzling fire cavorted wildly. "Perhaps they don't wanna come in—Perhaps they're all nuts up there—" After she had been told to look after her job and mind her own business she added, sotto voce, "Not so nutty—"

Then the wall speaker that had so long resisted her wiles and blandishments burst into tinny life. "Canis Majoris to control," it said. "Canis Majoris to control. Can you hear me, control? Over."

The blonde noted the reading of her dials and meters, edged a little closer to the microphone. "Control to Canis Majoris," she said slowly and distinctly. "Control to Canis Majoris. You are coming in loud and—" She gasped indignantly as the port captain elbowed her aside. "This is Captain Hoppinson!" she heard him yelp. "Captain Hoppinson speaking. What are you doing up there? Don't you know that I have to get the Lunar Ferry off? She's half an hour late already! Come in at once!"

"We can't."

"Come in at once!"

"You'll be sorry if we do. She won't handle."

"Come—" began Hoppinson again. Then— "What's wrong?"

"Cargo shifted. We shall abandon attempts to land and throw ourselves into a closed orbit around Earth until we can rectify matters. Out!"

"Roger. Out!" repeated the port captain automatically. Then—"Cargo shifted? How could it? Surely any possible shift must be away from the direction of acceleration? And that would lower your center of gravity. How has it shifted? HOW HAS IT SHIFTED?"

But no answer came from the wall speaker. Canis Majoris' crew had too

much on their plate to concern themselves with idle conversation.

There was really no reason why the cargo of Gannymedan protoplasm should not have been carried by one of the "Thunder" class—the Jovian regular traders. But they were passenger ships—and *Canis Majoris*, in spite of her imposing name, just a tramp freighter. This Gannymedan protoplasm was dead—and in very cold storage. In Gannymedan laboratories it had been thawed, heated, literally cooked—and nothing had happened. It had been exposed to all kinds of radiations, hard and soft, but none had supplied the missing spark of life. If it had come alive it would have been no more than a blob of nonsentient, helpless, harmless jelly. But—the "Thunder" ships were passenger carriers. And passengers pay for safety—they aren't paid to take risks, even nonexistent risks.

All this, and more, Captain Winstanley was told shortly after he touched down at Port Lasalle. He was seated at ease in his room, sharing a bottle of whiskey with the port captain. The formalities of clearing the ship inwards had been completed and both men were enjoying a break in their routine duties. To the master it was relaxation after the strain of bringing his ship to a strange little port on a strange little world—normally the regular traders handled all the traffic to and from the moons of Jupiter. To the port captain it was somebody fresh to talk to.

"Don't know why Jenkins is not down yet?" he said. "He's your agent. But I doubt if he'll be able to tell you more than I have."

"But what is the stuff?" asked Winstanley again.

"Protoplasm. Just that, nothing more. But it's dead. It's never been alive, they reckon. Once this world must have been warm, with a gaseous atmosphere and even a sea. A thick, soupy sea. Somehow, as happened on the inhabited worlds, the stuff of life was formed from inorganic chemicals. But it never came alive. And then the Sun cooled or Jupiter cooled or something—I'm no astronomer—and these great hunks of life stuff were frozen up, kept in cold storage until a party of prospectors stumbled on them about a year ago. And you're to take the first big consignment back to Earth."

The captain was not impressed.

"As long as I can keep my center of gravity down it's all one to me what I carry," he said. He rose to his feet, a short, stocky figure, his face heavy rather than intelligent, the face of a worrier. "The last cargo I carried," he continued, "they put uranium on top of light case goods. They say that Manton . . . d'ye know him? He's port captain at Port Reval—nearly had a fit the way I wobbled coming down. I nearly did," he finished gloomily. A little bell rang. He picked up a telephone. "Who? Mr. Jenkins? Show him up, will you?" He looked at the bottle on his table, worried a little about the size of his expense account if he should have to start a fresh one for the agent.

Canis Majoris' stay in Port Lasalle was far from unpleasant. Like the port captain, most of the population of the little town were pathetically eager to make the most of the new company that had descended upon them from the sky. There were dances in the great social hall that occupied the

geometric center of the domed city, there was a continual round of parties in private dwellings. And there were, for those interested in alien worlds themselves rather than the human settlements thereon, trips over the frozen surface of the little satellite.

It was on one of these excursions that Captain Winstanley and Canfield, his navigator, saw the protoplasm being quarried—that is perhaps the best word for the process—ready for shipment. It looked curiously dark in the blaze of the arc lamps, contrasted against the white crystalline purity of the frozen water and atmosphere among which it lay. Like a peculiarly veined jelly it was—but as the digging machines dug their sharp blades into it it did not behave like jelly. It splintered and crumbled like ice—but a rather tough kind of ice.

Winstanley and Canfield, a little illogically, drew back as they were spattered by the flying fragments. Inside their spacesuits they were immune from contamination—if contamination there could be. And this was manifestly impossible. But somehow in both minds some obscure train of thought led to the absurd conclusion that this was a scene of butchery. They more than half expected to see blood flow from the mangled flesh—the flesh that had never known life, that had never, even, existed in cellular form, that was but the raw material of life.

"Sickening, somehow," said the captain as they withdrew from the scene. Canfield agreed, his voice sounding subdued in the helmet phones.

Both men drew a deep breath. It was peaceful here, behind the white hill that cut the human and mechanical activity, the glare of the artificial lights, from their view. Jupiter rode the black sky—huge, pale and awesome. More awesome than when seen from the viewports of an inward bound ship—here the horizon of low, jagged hills served to accentuate its great bulk.

"And this world," continued Winstanley, "it gives me the creeps. I know Mars—with its good, clean deserts. I know Venus. There's life there—unpleasant life. But it's life you can fight. You know where you are with it. But this stuff— It's not a case of what it was—if it ever was anything. It's not a case of what it is. But—what it could be. And I just hate the idea of its being in my ship!"

"But it's never been anything yet, sir," comforted Canfield. "They've tried everything to supply the missing spark. And Thundercloud has taken two small consignments in her mail room already."

"I know, I know. But why have they had such a rigorous survey of the hull insulation? Why have they fitted all those extra grids in the refrigeration system?"

"Nothing like making sure, sir, that nothing does happen!"

"I know, I know. And I still don't want it to happen to me!"

The protoplasm was finally loaded into Canis Majoris' hold. That compartment was now doubly insulated—against the irruption of heat from the engine room or Outside— Space is not cold when the full radiance of the sun is beating against the hull of your ship—and against cosmic

radiation. A circulation of brine from the side of the ship in shadow throughout the cargo spaces insured that a temperature well below zero Centigrade would be maintained. During the ship's ' descent through Earth's atmosphere the brine would be switched to a compact little refrigeration unit. All had been foreseen. All, that is, but the unforeseeable.

In Canis Majoris' control room Captain Winstanley, Canfield and Wallis, the chief pilot, were strapped into their deeply padded chairs.

"It's not a bad little world," Canfield was saying. "The people certainly put themselves out to please us."

"I should say they did," growled the pilot. "What was the name, now, of that little blonde?"

"Never you mind, Wally. You weren't doing too badly yourself—" He looked at his chronometer. "Just two minutes to go. Two minutes to go, sir," he repeated to Captain Winstanley.

"Watch your chronometer, Mr. Canfield."

"Ay, ay, sir! Yes, Wally, I prefer blondes — they get dirty quicker."

"Watch your chronometer, Mr. Canfield!"

One minute . . . thirty seconds ... twenty . . . ten . . . five ...

Canfield's finger pressed the button actuating the warning bells. Their shrill clamor resounded throughout the ship. At the exact split second he released the pressure. The abrupt stoppage of the sound was Wallis' executive signal. Balanced on her shaft of flame Canis Majoris climbed into the Jovian night. Somewhere aft a little tube flattened under the acceleration, flattened and fractured.

The run from Gannymede to Earth was as uneventful as such trips invariably are. Perhaps even more so—for it was experienced under conditions of free fall. This would not normally have been the case—but Canis Majoris' main converter had been giving trouble. The surveyor in Port Lasalle had passed it for the homeward voyage on condition that it was used for blasting off and landing only. The local representative of the Imperial Research Foundation had at first demurred—the terms of the charter party called for a passage made at an acceleration approximating one Gannymedan gravity. But no other outside ships were available, and if the shipment were made by one of the regular liners it would be made at the standard one gravity, Earth, of the passenger services.

If the trip had been made under constant acceleration the little defect—and its consequences—could hardly have escaped notice. Had Spurling, the junior officer acting as engineer, paid more attention to his duties it would have been noticed. He could hardly help discovering that the brine circulation system of the refrigerated hold was losing quantities of liquid daily. It wasn't much—each grid was independent of the rest. But it was a continual drain. But Spurling just mixed a few odd pounds of calcium chloride with water and poured the solution into the reservoir as necessary. It was his first trip with a refrigerated cargo, and perhaps he thought that

this was normal procedure.

The faulty grid was on the after bulkhead of the hold. This bulkhead was insulated against the ingress of heat—but with the failure of the grid it became warmed, little by little, by the relatively high temperature of the engine room. True, the main drive was not working—but all the auxiliaries were. It was insulated against hard radiations from either the main drive or those same auxiliaries. But insulwool, invaluable though it is, has one grave disadvantage when compared with a thickness of lead of the same opacity. It doesn't like water. The moisture from the leaking pipe caused it to shrink upon itself so that, instead of a tightly packed mass of interlacing fibers, there was something that resembled nothing to much as a collection of large holes loosely tied together with sodden string.

So there it was.

Just the right degree of heat. Just the right hard radiations from the auxiliaries. Just the correct magnetic field from the same source. And—perhaps the most important —the brine.

The run from Gannymede to Earth was as uneventful as such trips invariably are. The officers played bridge and poker, growled about the food, smoked too much and slept too much. The surgeon had a quarrel with the captain lasting almost the entire voyage. He wanted to be allowed to take just one infinitesimal, unmissed spoonful from the cargo for his own private experiments. With some masters the request would have been granted. But not Captain Winstanley. It was all one to him whether his cargo was radium or refuse—his duty was to deliver it to the consignees correct to the last fraction of an ounce. It would have saved him much worry if he had unbent this once. He would have found that his cargo, lacking other nutriment and occupation, was making a hearty meal of the plywood insulation casing in the hold. But it was loath to stray far from the gentle heat, the comforting radiations, that streamed from the after bulkhead.

At last the moment came to commence deceleration. The ship hummed and quivered to the song of the gyroscopes, the stars marched in orderly procession past the forward viewports. Spurling, spacesuited in his engine room, stood by the main converter. As far as lay within his rather limited capacity he was rather anxious. Crawling in from Gannymede as he had done, Canfield was not putting on the brakes until Canis Majoris was almost in the outer, tenuous fringes of Earth's atmosphere. And if the surveyor had been over optimistic, if the converter should fail to function, the ship and all her crew were due for a very long drop without much opportunity to do anything about it.

The warning bells shrilled and the red light flashed on over the main switchboard. The engineer made some hasty, last minute adjustments and hoped for the best. He took a tight grip on the guide rail. It seemed that there was no interval of silence between the ringing bells and the thunder of the jets. But Wallis was a master pilot and Spurling was eased to the deck almost gently. He inspected his meters and started a shrill, tuneless, self-satisfied whistle. He hoped that they wouldn't keep him too long aft. He wanted a smoke. He pressed the stud that would indicate to control that all was functioning as it should.

A little white light flashed impatiently on the switchboard. He uncoiled a length of flex from his belt, plugged it in to the socket just below the signal. "Engines," he said.

"Control," came Winstanley's voice. "Have you remembered to switch over your brine system to the refrigerating machinery?"

"Yes, sir," lied Spurling, resentful at being caught out. He started the little motor on its endless, rhythmic compression and expansion cycle, watched the thermometer dials for an indication that the time had come to turn the necessary cocks.

"A lot of trouble for a dirty great hunk of dead jellyfish—" he growled forgetting that his telephone was still plugged in. Captain Winstanley reminded him in no uncertain terms that it was. "And now, I suppose," complained the engineer whilst recoiling the flex on his belt, "the old basket will keep me here all the way to Port Curtis without a break."

He was dozing, sunk deep into the padding of his chair, when Canis Majoris gave her first lurch. He was awake in a second and peering intently at his meters. All tubes of the main drive were firing evenly and sweetly. Still—that didn't mean that faulty firing had not taken place.

The little light on the switchboard flashed again.

"What are you doing, Spurling came an indignant voice.

"Nothing. She's firing perfectly."

"She may be now—but she just made a dirty dive to starboard. Much more of this and we shall have to cut out the stabilizer and come in on manual."

Spurling, with his telephone unplugged, told those in control what they could do with the stabilizer. He went back to the tube breeches. Again came the lurch, sending him sprawling against the converter. Even through his insulated suit he could feel the fierce heat, the sting of short radiations. Yet he could swear that the needle of none of his dials had so much as flickered. When he had recovered he reported this to a skeptical control.

But he was not surprised when faintly, through his padded helmet, he heard the clatter of feet on the metal ladder from forward. The insulated door above his head was flung open and a spacesuited figure entered. He didn't see who it was till the other touched helmets with his preparatory to talking. It was Kemp, the second pilot.

"Sorry," he said briefly, "but Pop sent me. I checked up in the gyroscope room on the way down—but the stabilizer seems in perfect order. I left young Mason there just in case. What's the trouble?"

"There's no trouble," began Spurling indignantly, then a third heavy lurch sent them both rolling on the deck. Kemp was first to his feet. For a moment it seemed that he would kick the engineer with his metal-shod foot. "No trouble?" he demanded, forgetting that the other couldn't hear him. "No trouble?" He staggered to the tube breeches, sat down, straddling

his legs wide so that he would not be overset by any further sidewise motion. And his study of the meters throughout all that followed convinced him that the engineer, for once in his life, was right. There was no faintest hint of irregularity. And at irregular intervals the auxiliary jets brought *Canis Majoris* back to the vertical with bone-shaking jerks.

In the gyroscope room Mason was equally puzzled. The stabilizer hung in its gimbals as it always did, humming gently to itself, a mere toy compared with the big flywheel used to swing the ship's head in any desired direction when falling free. Power of its own it had very little, yet through its circuits and relays it ruled the steering jets, could and did keep the vessel vertical relative to the surface of any world upon which a landing was being made. Mason watched the clinometer, and saw that *Canis Majoris* was not making the usual leisurely topple common to all ships on these occasions—to all ships, that is, whose center of gravity was kept decently low. Instead, it seemed that she was doing her best to turn through one hundred and eighty degrees, that she had a vicious determination to descend to Earth in unseemly, screaming haste.

The cadet remarked on this to Captain Winstanley when he came down to inspect conditions for himself. "I know," replied the master, "there's a perfectly good clinometer in control!" Then, regretting having hurt the lad's feelings, "But what can be the cause of it?"

"Shifting cargo, sir."

Mason had a passion for sea stories. But even he should have known that the cargo of a spaceship can shift only away from the direction of flight. Down.

Winstanley closed the face plate of his helmet and went on down to the engine room. Mason watched his form, bulky in its armor, vanish down the tube running through the cargo space, along the axis of the ship, to the power units. His face still burned to his reaction to the scorn with which the captain had received his suggestion. Through his mind flashed incidents from books, from films. In his imagination he saw seamen, stripped to the waist, shoveling with desperate urgency the bulk grain that, by its shifting, had put their ship on her beam ends in a Western Ocean hurricane. The light of the hurricane lamps was dim and fitful—but the face of one of those sailors was surely that of Cadet Mason. With a sigh he put his dream from him. His young face stiffened with resolution. He went to the telephone and called control, fearful lest the captain, aft, was already on the party line.

On top Canfield, left in charge, was feeling far from happy. He had never known the ship—any ship—to behave like this before. In his periscope mirror he could see the distant greens and browns of Earth, the harsh yellow of the desert landing field. From the speaker on the bulkhead came a woman's voice: "Port Curtis control calling *Canis Majoris*. Control calling *Canis Majoris*. Can you hear me? Over." But the captain had told him not to answer any signals, to say nothing until there was something that could be said. He knew that *Canis Majoris*' unspacemanlike antics could not possibly have passed unnoticed, and he wanted to be able to salve some shreds of his dignity by having a convincing explanation for the port captain ready to hand when he broke radio silence.

Canfield was feeling far from happy. He knew Mabel well, wanted to be able to be—as by Captain Winstanley's tolerance he always was—the first to greet her. He wanted to make a date for tonight. But Canfield was feeling far from happy. The motion was not what he was accustomed to. A fleeting thought crossed his head that this was what the heroes of young Mason's favorite stories had to put up with. He managed a sickly grin, was half tempted to ring the cadet in the gyroscope room and ask him how he liked a life on the ocean wave. But the Old Man would be on party line at any moment. He wished that the Old Man would give the order to put her on manual. Being able to do something would take his mind off his physical misery.

He became aware that Tarleton, the junior cadet, was thrusting the telephone into his face. With a limp, nerveless hand he took the instrument.

"Mr. Canfield, sir, this is Mason. Would you mind if I took off the inspection hatch in the gyroscope room? I think the cargo's shifted!"

"I think you'd better ask the captain," Canfield intended to say. He got as far as "I." Just then *Canis Majoris* excelled all previous efforts. Over she went, and over. Those in control just clutched the arms of their chairs and prayed. Over she went with an accelerating, sickening swing. They could see the rim of Earth through their viewports now—a rapidly widening segment.

Canfield was too good a spaceman to attempt to interfere with the efforts of the stabilizer. That would turn probable into certain disaster. But there was one thing he could do. He reached across Wallis and cut the main drive. On the bulkhead the wall speaker fell suddenly silent in mid-sentence. The navigator felt comfort in the assumption that Mabel had seen what was happening in the control tower screen, had broken off her efforts to raise the ship in an agony of horror and apprehension.

Slowly, too slowly, the auxiliary jets took hold. Viciously, too viciously, they drove the stern round in an arc of violent acceleration. The bows reached the apex of their swing and started to plunge down the other side of the slope that led to certain destruction. The opposing jets took hold and every structural member complained loudly and bitterly as the turning moment was suddenly and violently checked.

Tarleton, at the telephone, struggled for breath and gasped— "Put her on manual, sir. The captain says to put her on manual before she breaks herself up!"

The monosyllable "I" could be confused with "ay." Especially when the speaker is struggling with a desire to vomit, and when the listener desires an affirmative answer to his request. But it was not until *Canis Majoris* had done her best to nose dive to Port Curtis that Mason was able to do anything about it. Then the stabilizer was cut—and any doubts he may have had as to his superior's meaning were dispelled by this fact. He had been told to watch the stabilizer. It was no longer working. It was, therefore, obvious that he was supposed to be doing something else.

With human hands at her controls Canis Majoris' motion was much easier. She plunged as wildly as before, and the corrections were not applied with the same speed—but she was nursed back to the vertical instead of being slammed back regardless of the feelings of herself or her crew. Even so it was no easy job that the cadet had to raise the heavy, hinged, insulated plug. Staggering with every lurch he toiled manfully. And then, when he had it open the merest crack, he let it drop as though he had caught a glimpse of the hell fire of the ancients in the dark cavern beneath his feet.

Cut off by the falling slab a slimy film of grayish life stuff contracted itself into a ball, then stretched out a questing pseudopod that licked across his boot. Under its touch the leather seemed to rot, to melt even. Mason kicked wildly and retreated to the furthest corner of the gyroscope room. The alien life contracted upon itself once more, then began to crawl aimlessly around with motions reminiscent of those of an amoeba.

A helmeted head emerged from the tunnel hatchway, followed by an armored body. It was Captain Winstanley. For a few seconds he watched the cadet, who had taken a spanner from its rack and was crawling around on the deck, beating wildly at something that seemed always to elude his blows.

"Mason! Mason! What are you doing, boy?"

"It's the cargo, sir! It's shifted! Like I said!"

"Impossible!" snorted the captain.

"But it has, sir! It's alive!"

"Alive?" Winstanley was shocked out of his attitude of superior scorn. All the misgivings he had felt whilst loading this shipment of potential life rushed back in one frightening flood. "Alive?" he demanded again. He looked down at his feet. Over them had flowed a long streamer of gray slime. It rippled slowly along its length. And it came from the inspection hatch, oozing up through the cracks along its edge.

Here, at last, was the explanation of his ship's impossible behavior. The cargo had been stowed so as to occupy the lower third of the compartment. It now, for some reason, occupied the upper third. The center of gravity had been raised far above its safe limits. But this was no time for theorizing.

"Get that hatch dogged down as tight as you can!" he barked to the cadet. "Then run down to the engine room and get a blowtorch! Hurry!"

Himself, he clambered up the ladder to control with a speed that, in armor, he would have deemed impossible. He went straight to the R/T. The others heard Mabel reply, then heard Hoppinson break in. When he heard the port captain's "come in at once," he laughed shortly and bitterly. At the words that he was going to throw the ship into a closed orbit around Earth Canfield got busy on the necessary calculations. With the controls on manual Wallis was still fighting the plunging ship. At a brief order from the master the chief pilot heaved a great sigh of relief and poured all the power at his disposal into the main drive. The acceleration pushed them deep into their padded chairs, made their very bones creak, but the discomfort and

actual pain were as nothing to the knowledge that they were headed out and away to where they could fight the danger at leisure, well clear of Mother Earth's perilous embrace.

It was only natural that the surgeon should be one of the conference that, a few hours later, met in the captain's room to consider ways and means. He was the only officer with a knowledge of the mighty forces, the delicate machinery, which, to those who sent the great rockets roaring across the void, were still almost forbidden mysteries.

He had a long memory, had this Dr. Sheridan—almost as long as his lean, equine face.

"This wouldn't have happened," he reminded the captain, "if you'd let me have the stuff for study. But suppose you let me know what you've found out."

"You couldn't have—" began the Old Man, then thought better of it. He got his voice, his dislike of his medical officer, under control. Then— "First of all, it's alive," he said. "I don't know how or why. Secondly, it's motile. Thirdly, it likes radiations of various kinds, including heat, but not too much of them."

"And its food?"

"Anything organic, so far as we can see. And, perhaps, metal."

The boot of the spacesuit the captain had been wearing in the gyroscope room was passed around for inspection. The tough, rubberized metal fiber was corroded and pitted, almost eaten right through. Unconsciously they all looked at the deck at their feet. Somebody remarked that it didn't really like metal—it was only after the flesh that was inside it.

"And so," continued Winstanley, "I have young Kemp standing by with the blowtorch in the gyroscope room. Spurling has the other one in the engine room in case it—they?—break through the after bulkhead."

"Then it's quite simple," said Sheridan. "We just burn the stuff up. All living matter—as we know it—likes heat. But not too much of it. And all living matter can be destroyed by fire."

"Fine!" replied the captain, but without enthusiasm. "But please remember that—even though the safety of my ship does come first—I'm also supposed to deliver the cargo. Oh yes, I know that even if we should have to destroy it it will all come under General Average—but first of all I must do my best to make port without resorting to what would be the equivalent of jettison."

"There's one way," put in Canfield. "But we might have to kill it. But it wouldn't be damaged."

"And that is?"

"Evacuate all the air from the ship, sir. I thought at first that we could evacuate from the hold only—but there are no air cocks there. Still, we have our reserve cylinders. Not that it really matters—we could make the

short run home in suits if necessary."

"Before we try that," suggested somebody, "couldn't we drive it and keep it aft with the blow torches?"

"No. We've tried that. It's too big and the torches are too small. It just curls away—and round. Even if we did succeed it would be liable to break through the after bulkhead into the engine room. Then there'd be a mess!"

"Spacesuits it is, gentlemen," said Winstanley. "Pass the word down to the engine room and gyroscope room. And you, Mr. Wallis, stand by to open the cocks as soon as all is in readiness."

Winstanley and Canfield were in the gyroscope room when the air was exhausted from the ship. Kemp was there too, his youthful slightness hidden by the bulky armor he wore. He held his torch like a weapon—as indeed it was against any specialized, organized form of life. Against the amorphous mass of growing proliferating cells it was like a needle against an elephant.

No machinery was now working, so there was no static to interfere with the built in helmet sets. It was not necessary to plug in the telephone leads. Faint and metallic came Wallis' voice— "All cocks open!" In every compartment but one Canis Majoris' crew watched the dials of pressure meters. This last compartment also contained life, but no meters. They were not necessary. The thing inside was sensitive to changes in its environment. And this change came slowly at first, tardily enough to give time for readjustment as the air hissed out through the not quite tight joints of the inspection hatch. When Kemp sprang forward and knocked back the dogs the heavy plug did not, as he had anticipated, explode open under the sudden pressure of atmosphere rushing into a vacuum. It lifted a little, there was a tiny puff of ice crystals, then it fell back.

"Must have all leaked out through the hatch," said the captain. "Let's see what's happened down there."

Kemp caught hold of the ring bolt of the door and pulled. It was awkward work, the ship was falling free and he had no purchase. Canfield went to assist him—and between the two they threw the plug back on its hinges.

It took many minutes' work—or fighting—with the blowtorch to get their cargo back into the hold. The thing had encysted itself—but it had shrunk very little and was still active. Its mass was now encased in a leathery integument—and the worst of it was that this skin seemed insensitive to heat. True—it was only a matter of split seconds before the biting flame pierced it, but there was not the instantaneous shrinking away from the heat that there had been before.

But they got it down. Once Canfield was almost enveloped in the flowing folds so that Kemp had literally to burn him out. And once a pseudopod succeeded in snatching the handle of the blow-torch from the cadet's clumsy grasp. It was indeed fortunate that their enemy was not intelligent.

But they got it down and slammed the hatch tight shut. Then they were able to inspect the damage.

Nobody was hurt. But Canfield was in a sorry state. The thing may have developed a skin—but the corrosive juices it secreted were in nowise hindered. The navigator's suit was scarred and pitted. In places the metal must have been paper thin. And as they ran curious, gloved fingers over the armor the weakened air tank blew out with a soundless, yet violent, explosion. Canfield needed no bidding to hurry back to control for a spare tank. And after he got it shipped he found that his suit was leaking.

"And that's that," said Captain Winstanley glumly a little later. Canfield, lugging there a cylinder of oxygen, had been able to change into the one spare suit in the air lock. Then Kemp had discovered a serious leakage in his own protective clothing. It could have been repaired—but it had been discovered that anything in the nature of a hand to hand combat with the monster in the hold was dangerous, especially with a hard vacuum in lieu of atmosphere. So the cocks had been shut and the reserve cylinders of oxygen and helium opened.

"What now?" asked Captain Winstanley of nobody in particular. "Lunar Radio hasn't been very helpful."

"They know less than we do," said Wallis. "We're Johnny on the spot. We've bought it."

"Of course," continued the captain, "we could do as they want. Stay here in this orbit until they send out a shipload of scientific johnnies to board us and take over. Three days, they said. But the beast has holed the shell in a dozen places—and Kemp and Mason have their hands full clapping patches on the deck of the gyroscope room. At this rate we shall soon have to take to our suits again—and two of those are leaky."

"Abandon ship?" suggested Sheridan.

"We have to go through the hold to the lifeboat. Besides—" He didn't finish—but they all knew that—even in the interests of science—this expedient would never be considered by the captain. Not while he had a ship under his feet with an ounce of power in the converters.

That is the way that Canfield put it to himself. As the word "converter" formed itself in his mind he had his brainwave. He spoke swiftly, convincingly. "And so," he concluded, "the radiations will drive it back aft, push our center of gravity back where it belongs. We shall be able to land."

"Where?" demanded the surgeon abruptly.

"Port Curtis, of course. Where else?"

"Not while I'm medical officer of this ship. It's quarantine for us, I'm afraid. I'm sorry, captain," he went on, "but if you'll look through the Regulations you'll find that I'm right. This thing in our hold can be classed as an unknown, alien life form. So you'd better tell Lunar Radie to expect us at Port Copernicus."

Canfield's plan was simplicity itself. The main converter was to be dismantled and brought up, through the tunnel, to the gyroscope room, its

output was to be fed through four venturis for which the skin was to be pierced at four equidistant places. It would not be efficient—the jets would be pointing at too much of an angle from the fore and aft line of the ship for that. But it would dispose, once and for all, of the high center of gravity and the free surface effect which had defeated their first attempts to land. Just as the mass of protoplasm had surged forward, to put as much distance as possible between itself and the main converter, so it would now retreat aft.

There was need for haste. As the bulky converter was hauled and manhandled through the tunnel it was noticed that the smooth bore showed signs of pitting at many points along its length. And it was soon more than mere pitting—pseudopods, pencil thin, poked, through the holes and reached aimlessly around. And there was something hopeful about their blind questing that chilled the beholders. Kemp and Mason scuttled down the tube with their rubber patches, but the air was already very thin. Winstanley lost no time in giving the order to don spacesuits.

The command would not have been long delayed in any case. Willing hands had torn away the plywood sheathing, the spongy insulwool, from all around the base of the gyroscope room. An electric welder flared and sputtered as an improvised tripod on which the converter would stand was secured to the deck. Thin as it was, weakened by the corrosive fluids secreted by the monster below, it would never stand the pull of the power unit. So more metal struts were placed so as to distribute the thrust over the deck above.

From the base of the converter, ragged where it had been hastily cut, protruded the main drive. Luckily its lining, although impervious to the searing heat of the blast, was soft and yielded without a struggle to a pair of shears.

Four spare auxiliary tubes were hoisted up from the engine room. They were already lined, as was the improvised cap that had been hastily made to fit over the ragged end of the big driver. The last air puffed out into space as the holes, through which the venturis would project, were cut in the skin of the ship. The welding arc flared ghastly blue as they were secured. From a tube running down the bulkhead protruded strings and festoons of wiring, for all the world like the intestines of a sorely wounded beast. Even though they were not intestines the anatomical simile was fairly apt. They were nerves—the nerves of *Canis Majoris*. And with swift precision they were connected up to the displaced power unit. And the organs of balance, the gyroscopes, torn from their places to make room for this intruder, hung sullen and silent in the corner to which they had been flung, secured by a few hastily welded clamps to prevent them from drifting free and impeding the workers.

Canis Majoris, driven from her orbit by the blast of her improvised drivers, swung down towards the Moon. Unsure of himself Captain Winstanley, at the controls, twisted and turned, at last got her stern down and bows up. There was no real power—that was the trouble. But she handled.

After much backing and filling Winstanley got the ship over Port Copernicus. Sitting idle, a mere passenger, Wallis was bitter. He could have done it so

much better, he knew. Especially since Canfield was so obviously right. It was evident that with the first surge of power through the converter the thing in the hold had retreated aft, away from the unpleasant heat and radiation.

He said as much, sotto voce, to Canfield. "I wonder—" replied the navigator. "Doesn't matter much anyhow."

Wallis thought this over. He wasn't feeling too bright—when the order had been given to don suits he had been left with one of the leaky ones. But now the high crater walls, the squat port administration buildings, of Copernicus were plainly visible in the perils. It would not be long until he could relax and breathe deeply in the Earth-normal atmosphere of the Quarantine Station.

"Of course it does," he said at last. But the navigator was busy with the radio telephone. Some female voice was answering—and Canfield was trying hard to get some warmth into the coldly official words. The girl at the other end seemed to know him—and managed it quite well. Wallis was faintly envious. After a rough trip it was good to have a woman to come home to.

Tired of being a fifth wheel to the coach he asked the captain if he could have a look at the cargo. Winstanley, intent on his pilotage, grunted a syllable that could have meant either yes or no. Wallis took it to be an affirmative. He got to his feet and walked across the amazingly steady deck to the hatch.

In what had been the gyroscope room he found Spurling, watching the converter like a mouse watching a cat. As a spectacle it was—interesting. But it was far from reassuring. In the midst of its web of stays and girders it shook like an infuriated spider. Wallis put his helmet to that of the engineer. "It will see us down!" he shouted. "I hope."

Ducking under and through the maze of struts and rods he came to the inspection hatch. Kemp, his junior was there, and Mason, the latter still clutching his blowtorch. They helped him to lift the plug. He almost screamed his amazement. Where there should have been a clear drop of thirty feet was a quivering, faintly gleaming, gray mass. It was alive still, surged half heartedly up into the opening. A pseudopod extended itself—and died as it stretched out from the parent body. Wallis tried to kick it back into the hold. And then the three of them were on their hands and knees plucking at the dead protoplasm with clumsy, gloved fingers. It stretched. It pulled out into long, elastic strings. But it refused to come loose from the deck.

It was then that Wallis went almost frantic. His frenzy communicated itself to the others. They jumped up and down on the mass of almost dead tissue in the square of the hatch, they attacked it with the blowtorch, with the electric welder. Somehow Canfield's plan had miscarried. It seemed that the ship had achieved a purely fortuitous equilibrium, a lucky balance that might at any moment be destroyed. A crash on the Moon, with its feeble gravity, would be less serious than one on the Earth—yet might well be sufficiently serious to cost the lives of every man of Canis Majoris' crew.

Yet the ship was still coming down steadily—so steadily that Wallis felt that it was, it must be, too good to last. At any moment would come the inevitable tilt. And Winstanley, lulled into a sense of false security, would not react sufficiently fast to deal with the emergency.

The chief pilot left the others still struggling to force the tough, resilient mass down into the hold. He had to warn control. He made his way to the nearest telephone socket, uncoiled the lead from his belt and plugged in. But he could get no answer. The violent vibrations had broken the wire somewhere along its length.

Hastily, his lungs pumping in their efforts to make the most of the thin air supply in his suit, he clambered up the ladders to control. Winstanley gave him a glance as he burst into the compartment—then gave his undivided attention to the task of piloting his ship in to a safe landing. Wallis considered reporting to him personally—then decided that if he did so the captain would be sure, in the excitement of the moment, to do something wrong. He went instead to Canfield, bent until his helmet touched that of the navigator. He shouted, all in one breath: "But it's still up. The center of gravity is still far too high!"

Canfield said nothing. Through the transparent plastic of his helmet Wallis could see his bored, superior smile. He took a pencil from the rack before him, placed it upright with the point on his gloved finger. He removed his restraining hand. The pencil, in spite of the futile attempts made to balance it, fell.

Canfield took another pencil, and a pair of dividers. One point of the instrument he forced into the plastic just above the point of the pencil. This leg made an acute angle with the little rod, the other end was bent inwards. Again Canfield put the pencil point on his finger. It balanced. He pushed up. Still the pencil did not fall.

"For'ard drive," he condescended to explain. "She's stable. Of course the hull will be badly burned and pitted by the back blast from the jets—but as far as this landing is concerned she's safe—safer than she has ever been. Thrust above the weight—" He smiled, a smug, self-satisfied smile. "So there's nothing to worry about, Wally. Nothing

It was lucky that Canis Majoris had only twenty feet to fall, and that twenty under Lunar gravity. It was lucky that converters are designed so as to automatically cut out in the event of the control circuit being broken. And most fortunate of all were Spurling and Kemp and Mason. In the confusion of crumpling bulkheads and flailing stays they needed far more than their fair share of luck to stay in one piece.

Still maintaining her hard won equilibrium she dropped. The big vanes, gouged deep furrows in the pumice dust of the landing field. She sagged amidships; her nose, with the control room in its very tip, broke away from the rest of the structure, hung briefly by a single, twisted girder, then snapped loose. It rolled for a hundred yards or so before bringing up against the port captain's office. This was not without convenience—the rescue crew did not have far to come.

"Safer than she's ever been," said Wallis bitterly. He, not being strapped into a chair, had suffered the most severe shaking up of all when the control room broke adrift. He sat in his bed in the little hospital, glaring at Canfield who had come to visit him. "Safer than she's ever been."

Canfield had the grace to look slightly embarrassed. "Oh, well," he admitted, "she wasn't. But it was the builder's fault really."

He fumbled in his pockets, drew a blank. He opened the door of the locker at the head of Wallis' bed, found what he was looking for—a pack of cigarettes.

"Hey!" said the pilot in alarm, "there's only one left. And you know very well that there's a shortage here!"

"Oh, that's all right. I'm not going to smoke it." The navigator put the little cylinder on the top of the locker. He placed the fore-finger of his right hand at one end, his thumb at the other. "Inertia," he said, "and thrust. All along the longitudinal axis." He pressed gently at first, then with increasing force. Nothing happened. "Now," he went on, "we substituted a diagonal thrust for a fore and aft one. Imagine the parallelogram of forces. Thrust along the longitudinal axis is still there—but so is a component at right angles to it." He held the cigarette, still between forefinger and thumb, up for the other's inspection. Then, with the index finger of his left hand, he pushed the little tube hard in the middle. The inevitable happened.

Wallis was not impressed.

Knowing all the answers would not get him a smoke.

THE END