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# COLLISION ORBIT

by CLYDE BECK

**The tiny asteroid with the frightened girl and the wrecked spacer with the grim young man slowly spun closer and closer . . . but the real danger came after the crash!**

**T**HERE'S ONE GOOD THING about a blowout. You don't need a mechanic to tell you what the trouble is when it happens. This was the first blowout I ever had, but as soon as I heard that explosive pinging whistle and felt the floppy jolting and the terrifying sensation of a vehicle out of control, I knew what was wrong. I reached forward and cut the power.

When I leaned back in my seat I was sweating and my stomach was pushing my tonsils around, and not only on account of the sudden switch from one and a half G's to free fall. I was in a jam, and I didn't need a mechanic to tell me that, either. Spaceships don't carry spare drive tubes.

Not little wagons like the Aspera, anyway. If you could get a spare inside the hull you would have to leave out the air plant or the groceries or else stay home yourself, and even then there would be no room for the tools to make the change. Retubing is a dock job, and the nearest docks were a million miles away on Phobos and getting farther fast.

And besides, you never need a spare. Tubes don't blow in space. Diamondized graphite is tough—you caliper the throat every time you dock, and after a few thousand G-hours you find enough erosion to cut down efficiency to the point where it's a good idea to put in a new liner.

I knew all this, but at the same time I knew the main tube had blown. What I didn't know was what I was going to do about it. I lit a cigarette and took a deep drag, just in case the stimulating effect of the quabba smoke would give me an inspiration.

It made me sneeze.

I threw the butt on the deck and mashed it with my heel before it could bounce off and go adrift in the cabin. I never had

liked the taste of the weedy stuff anyway. Smoking quabba is the prime attribute of a spaceman—it has the reputation of being a specific against spacesickness, toughening the cerebral meninges against high acceleration, cutting down reaction time when you have to act fast in a meteor field. Maybe it's all true. One thing it really does is make your clothes smell like a vacant lot on fire so people can say, "Ah, he's a spaceman," without having to ask.

No inspiration. Okay, Denby, think it out with your own brains. You've got a brain, haven't you?

Not being very eager to do any thinking about the situation I was in, I dragged the bulger out from under the seat and crawled into it. I had a vague idea that I might fake up some sort of patch for the tube and maybe limp back to Mars. I wasn't proud of it, but it was the best I had at the moment. I checked to make sure there was nothing on the screens, and then pulled myself over to the air lock, sealed the inner door, and started the pump.

While the chamber was exhausting, I tested the lubber line and snapped the end of it to a ring on the inner skin of the hull. When the lock clicked I pulled the hatch open and hooked it back. Then I took a short hold on the lubber line and stepped out into space.

For a minute I wished I had finished the quabba. This was not the first time I had been in open space, but the circumstances had not been so impressive before. Free fall had never bothered me particularly, but it bothered me now, with millions of miles of empty space under me in all directions and nothing in the sky but the tiny hard bright stars looking very far away. And the realization that I was alone, with a crippled ship, and a very good chance that the situation would be perma-



ment, made me feel that an antidote against spacesickness would be a handy thing to have.

After a while the muscles of my forearm began to ache from gripping the rubber line so hard. I let go of it and took hold of a hand rail and crawled back to the stern.

**I**T WAS a blowout, all right. The liner was completely gone and the jacket was a fused lump of slag. All I would need to patch it up was a week in the shops and a three-man crew. I crawled back along the hull and went through the hatch like a rabbit going down its hole.

I stowed away the suit and belted myself in the seat. So I would have to think anyway. I got out a pencil and reeled the tape out of the accelerometer and began figuring.

It took me an hour, which was not very good. Neither was the answer. I pushed the papers away and started all over again. The answer was still the same. The Aspera would miss the orbit of Jupiter by more than fifty million miles, and my nearest approach would occur about three and a half years after Jupiter had passed my intended point of tangency.

Of course these figures were only rough, and would be revised one way or the other after I had time to make a few triangulation shots. But I couldn't hope for much encouragement from any such revision. The Aspera, the ship my father had used to make the first landing on an asteroid ten years ago, was going to end up as an asteroid herself, and I would have the honor of being sole inhabitant—as long as I lasted.

I grabbed a sheet of paper and began figuring again. It took me only a minute or two this time. The period of the Aspera's orbit was seven and a half years, and seven and a half years Earth time make four Mars years within a few days. That was how much hope I had—in seven and a half years I would be back in the immediate vicinity of Mars, and I might have enough power in the steering jets to claw my way in to one of the moons. If I didn't bump into an asteroid. If Jupiter didn't pull me too far off course. If I

didn't go star-happy in the meanwhile, or starve. Before seven and a half years were up I'd be eating the air plant.

I threw down the pencil, caught it on the first wild bounce, and stowed it away in my pocket. I felt like a fool.

With reason. It takes a very fancy kind of fool to rot four years in the Girdle swamps on Venus, getting drunk only every second month so he can save up enough of his pay to put himself through Space Tech, and then, when he has graduated second in his class, to throw away a plushy job with Translunar and go barging off into space in an ancient can and get himself wrecked just because he lets a girl talk him into making a magnificent gesture.

That's what I told myself. It didn't help any, but I had it coming. I was a worse fool than that, even. Betty Day hadn't talked me into this. I had thought the whole thing up with my own little brain. The germ of the idea was hers, though, or rather the inspiration for it.

## II

**F**OR THAT MATTER, Betty Day inspired a lot of my ideas, ever since my first opening day at Space Tech. The first task they put us to on the opening day was to sit through a welcoming address from the President of the Institute. Maybe it was a good speech if you happened to be a kid fresh out of school, like most of the class, with your head full of the ideas of romance and glory that the tridim space operas pump into the cash customers, but when he began to talk about our "mission" and being "pioneers of the new frontier" it got a little too thick for me.

I hadn't come to the Institute of Space Technology to look for glory. I had come for the excellent if commonplace purpose of qualifying for a well-paid job. My father's happy-go-lucky space-rattling was not for me. I intended to do my planet-eering with the resources of a nice fat soulless corporation behind me. Four years in the Girdle of Venus—which name, in case you are wondering, is a neat little piece of irony—had left me very sane and practical and disenchanting about the whole

matter.

I let the President gabble on and began to glance around the auditorium.

I didn't glance far. As I turned my face toward the girl sitting at my left, she turned hers, and our eyes met. I managed a smile and cocked an eyebrow toward the speaker's stand. She smiled back with her eyes and crinkled her nose. It was a smooth straight nose, and the eyes on each side of it were a clear cool gray, set well apart under level brows. That was Betty—level and straight, and cool, too, for that matter. I didn't realize all this at once, of course. Just now I only knew that she was calmly and compellingly beautiful, and that I didn't feel sane and practical any more, and certainly not disenchanted.

There was a spatter of mildly enthusiastic applause, and I noticed the lecture hall again and saw that the President had finished and a youngish instructor was taking the stand to give out information about programs and class assignments. I got down enough to keep from getting lost. I heard him say the sections would be arranged alphabetically. That scared me—suppose this girl was named Wigglesworth or Zilch or some such and I would never see her again! I drew a circle around my name on the class roster they had given each of us at the beginning of the festivities and handed it to her. She smiled again and drew a circle around the name right next to it. Betty Day. So that was all right.

**T**HERE is no time for social life at Space Tech. You go there for the training and you get your money's worth. Not that I cared—the work was hard, but it was exciting, and you could see the purpose of it as you went along. I would have worked even harder and not minded, because Betty Day was alongside in every class I had. After a few days we were eating lunch together every day in the campus slop shop, which arrangement I liked. It took my mind off the sort of food they served there.

Every two or three weeks we found or took time to see a tridim together, since there is not much else in the way of extracurricular diversion at Tech. It was a

very slight intimacy, but it meant a good deal to me, and I believed that it did to Betty too. She was always pleased to have me around, and she crinkled her nose at my jokes in a special way that she did for no one else's, and my jokes were not much better than the average, either.

It was a long time before I tried to tell her about the way I felt. It was not until the three years at Tech were over and the Institute was letting down its hair to the extent of sealing our brow with the traditional farewell party for graduates known as the Blastoff.

By the time I got there the revelry had already started. I made a couple of passes at the punch bowl and looked around for Betty. She was out on the floor; I pried her loose from the Joe who was trying to dance with her, and we made one eccentric ellipse around the hall and headed for the terrace. It was cool out there, the unostentatious coolness of an early summer evening that has not quite forgotten the heat of the day, and there was a bright wash of moonlight on the bay beyond the lights of the town. There was a lot of stardust around.

Betty must have seen it too. She turned toward me, and the solemn look on her face and the way her shoulders glowed in the moonlight and the moonlight gleamed in her hair was enough to make your breath come short. My breath, at least. It came right up in my throat and stuck there, and I reached out and we sort of melted together. It was the first time that had happened. That's how hard they work you at Tech. -

After a little while we separated and I opened my eyes and they still worked well enough for me to see a bench not far away and we walked over and sat down.

Betty sighed and leaned toward me and I moved my arm out of the way to make room. The skin of her shoulder was smooth to my hand, and cool the way the evening air was cool.

"It's been fun, Tom, hasn't it?" I knew she meant the last three years and not just the last three minutes.

"Lots of work and lots of fun," I agreed. "That's why space work gets in your blood, I think. It's fun even when

it's **hardest**. My hitch in the Girdle even seems like fun now that it's over."

"I can see how planet work must be a thrill, even if I haven't ever been beyond the moon. I will be though—I'm going out with my uncle's Vesta expedition in a couple of weeks, you know."

**I HADN'T KNOWN.** I knew she had been talking about it, but I had hoped Ed Day would have sense enough to say no. I wasn't altogether selfish about it. I did want her closer in, nearer where I would be, but a big part of the reason was that the asteroid belt was the Edge, and the Edge has always been a rough place for women, even when it was at the moon.

I started to tell her this, but she interrupted. "How did you make out with Translunar? The man must have had a lot to say to keep you this long."

"I get the money all right. And a job."

"A good one?"

"Six thousand."

"Yes, but what and where?"

"Luna City. I'll be port engineer."

"Oh, Tom!" I didn't think she had to put so much disappointment in her voice. It was practically disdain. "I should think Translunar could do better than that. It's practically landlocked. You aren't going to take it, are you?"

"Why not? Six thousand is a nice sackful of cash, and besides, I get a piece of the company. Not a very big one, but it will grow."

"Oh, Tom!" It was pure disdain this time. "It isn't the money! You should have a ship. You should be out doing things. They can't make you into a glorified slug monkey on the moon!" She pulled away from my arm and looked at me again. The solemn expression on her face was somber now, or maybe sullen; anyway I didn't like it.

"For six thousand they can do worse than that," I said. "It's more than the captain of a liner gets. And, anyway, Translunar's ships are all staffed. There wouldn't be a place for me even if I wanted one, and I'm not sure I want one. Maybe there's more glamour in being a deep-space man, but you can't call the job the engineers do trivial. The idea of being a slug monkey

doesn't bother me at all at that pay. It's better than being a swamp hog on Venus."

"But it's such a waste, Tom! Anyone can be an engineer. You should be in research or exploration, and you know it. It's a crime to waste your talent in a dock job. You belong out on the Edge."

"Look, Betty—there are three sorts of Edge jobs: in the Patrol, on some sort of an expedition, or as a spacerat. The first two don't pay and, as for the third, even if I liked the idea of prospecting the planets, it takes money to outfit for it, and it took all I had to finish Tech."

"But you have the Aspera, and the Translunar prize would be enough to get her into shape again and buy supplies."

"I was given to understand this afternoon that it would be considered very unconventional to take the money and not take the job. And anyway, what would I do then—hunt for thorium in the asteroids? No thanks. I'll take the slug monkey job and the salary. And I think you ought to do the same. You could get a job closer in that would pay a lot more than going off to the Belt on a wild goose chase. When you graduate first in your class at Tech you can take your pick."

"Wild goose chase!" She sniffed. "We are going out to get data on the Warp at close range. We might even find out the way to get around it and open up the outer planets to exploration."

**THE WARP** was supposed to be a sort of fourth-dimensional wrinkle in space somewhere beyond the asteroids that swallowed ships and accounted for the fact that out of three expeditions that had tried to reach Jupiter, three had not returned. I knew better.

"There isn't any Warp," I told her. "My father proved that eight years ago when he made the swing around Jupiter."

"But he never published any proof, Tom."

"No, all the proof he had was in his log book, and that went with him on his last trip. But I read the log. He sighted the pirate camp on Callisto, and would have had pictures to prove it if all his film hadn't been raystruck. Maybe he could have got somebody to listen to him anyway

if he had tried a little harder, but he wanted to make a research job of it. He sold out all his claims and built the Astra and loaded it up with equipment to bring back all the proof that even the Patrol could ask for. Then he blasted off and no one ever heard of him again."

"But the idea of pirates doesn't make sense, Tom. There are no cargoes worth stealing beyond the Belt. On the Venus run, yes—but why should there be pirates out where there are no ships?"

"Okay, no pirates, then. What they really are is Hassley and all those hangers-on of his that were never accounted for after the Polar War. One of the moons of Jupiter would make a fine hideout for them. Air, water, and a livable climate. When any one comes snooping around, they see to it that they never get back. We blame it on the Warp and stay away and leave them alone."

"They would never get there in the first place. The Warp isn't just somebody's wild guess, you know. It follows from Heuvelstad's work. He derived Bode's law from quantum theory, and showed that a warp in space is the only explanation for the family of asteroids between Mars and Jupiter where there should be a single planet. No one can doubt it."

"I can. No one used to doubt that the earth was flat, or to bring it a little more up to date, that the craters of the moon were volcanoes, or that the red shift in the nebular spectra meant that the universe is expanding. A theory is good only as long as it explains all the facts, and Heuvelstad overlooked the fact that my father circled Jupiter and came back. He will just have to revise his mathematics."

"Maybe we'll know more about that after the Vesta expedition comes back." She sighed and looked out over the glittering bay.

I sighed too, and took my arm away from the back of the seat. I didn't quite know how the conversation had wandered so far from the point. I had felt quite set up about everything when I came to the party. I thought Betty would be glad about the Translunar offer, and maybe remark that six thousand credits was a remarkable salary for a fresh graduate, and I would

suggest that it was enough to get married on. And here we were arguing.

She turned and looked at me again. "Tom," she said softly; maybe I was going to have my chance after all.

"Yes?" I answered.

"Are you really going to take that engineer job? Couldn't you talk Translunar out of something that would give you the chance to do the things a Denby ought to be doing?"

"Maybe I could. But look—I've sweated out the last seven years just for the chance I've got right now, and I mean to take it. My father spent all his life chasing a dream, and what did it get him? The one great discovery he did make no one will even believe."

"I never met Lance Denby, but I know he was a great spaceman, Tom, even if you do seem to have forgotten it. I never thought a son of his would ever turn out to be a company man. Let's go inside."

We went inside, and I went home. The punch bowl was empty by now so I didn't even stop.

**I**T WAS probably a mistake, but I flew down to Mojave Outport the day the Vesta Expedition blasted off. Betty was very friendly when we said goodbye, and her hand in mine was small and firm, and the fingers were quite cold. I don't remember what I said. It couldn't have been much. There was a stiff feeling around my lips that it was hard to push any words through.

Betty was last on board. She turned and looked back for a few seconds before they closed the hatch, and it seemed to me that there was the same solemn expression on her face that I had seen that night on the terrace. I was too far away to be sure.

My interview with the Western manager of Translunar was scheduled for the next day. I'm afraid I made a poor impression from the very start. I wasn't feeling very sharp; instead of sleeping I had spent a good part of the night wondering about that look in Betty's eyes. That and a few other things.

Elkins, the manager, was the sort of man who wears a nice sharp crease in his pants and his hair brushed carefully over

his bald spot and calls everyone heartily by his first name.

"Well, Tom," he said expansively, after the formalities of introduction and exchange of cigarettes were out of the way, "let's get to business. First of all, this, ah—token."

He held out a check. The four figures on it were even prettier than the pretty-colored ink they were printed in. That was for me. Legally, by the terms of their prize offer. I had checked on that.

"Thank you," I said.

"And now, as concerns your place with the Translunar organization—"

I interrupted. "I'm sorry, Mr. Elkins. Personal plans make it impossible for me to accept the position you have so generously offered me."

That rocked him. Why not—it rocked me. He still smiled with his lips, out of habit, but his eyes weren't smiling. He pulled an ash tray to him and crushed out his cigarette—the one I had given him.

"But—! You realize this is most irregular, Mr. Denby! And unexpected."

"I do. I didn't know it myself until a little while ago."

"Is this decision final, Mr. Denby?"

"I'm afraid it is."

"Very well. I'm sorry to hear it." His tone meant that I would be sorry too. "In that case there is nothing further to say."

He pushed a button and a flunky came in to sweep me out. As I left I could as good as see him writing down my name on a sheet marked Blacklist in 72 point caps.

### III

**I**T TOOK THREE MONTHS TO make the Aspera spaceworthy again, and when I had bought the shielded telecamera, vitanalyzer, and the other little toys I would need to prove that there was a pirate hideout in Callisto, my bank account was within saluting distance of absolute zero. This was space-rattng for fair, without even a chance for paydirt at the end of the orbit. And Translunar, or any other outfit, wouldn't have me even as a swamp hog after this. I was the smart joe who was going to have me a Career.

You never know.

I stopped at Phobos to fill up on reactant. I didn't mean to land on Callisto. I didn't even mean to be seen if I could help it, but still I might have some dodging to do, and full tanks could be nice to have. For the same reason I put in a new power slug, because the emission had begun to go a little soft on the way out from Luna City. With the salvage of the old one, that left me just enough for a couple of highballs at the port canteen. I thought I needed them more than two loose coins. I left the slug monkey grumbling about having to root around among the obsolete parts to find a Group VI slug, and headed for the bar. Let him grumble. The Aspera was still a good ship, even if she didn't have the tungsil tubes it takes to handle Group IV fissionables.

Wait a minute! Maybe he got tired of rooting and put in a Group IV slug just out of laziness and ignorance. I made my way back to the power shack, cracked the case, and took a look through the periscope. The IV on the can was as big as a house. Well, when I got back I would be able to prove to Betty that I was right about trained personnel not being wasted in the engineering department. If I got back.

Seven and a half years in a space can is a horrible thought, but to do it in free fall is out of the question. I swung a pair of steering rockets to tangent position and cranked up enough rotation to give me a few pounds of weight. That made a mess out of the visual screens, but the radek would still let me know if anything came close enough to worry about, and this way a cup of coffee would at least stay in the cup. I brewed a pot of it, stuffed a pipe full of tobacco, and started to settle down to do my time.

I don't know how many days later it was that the radek began to groan. I quit counting days after the first week—if I needed the date I could get it off the chronograph. The signal was feeble, but I took the twist off her to get a fix on what it was. The radek gave the range as extreme—nearly a million miles—and anything that would trip the relay at that range must be big. After a few sweeps I found it in the scope, and it showed a perceptible disk. That meant an asteroid. I didn't know



which one—the General Emphemeris of the asteroids hasn't been published yet.

**D**URING the next day or two I spent a good deal of my time at the scope, and most of the rest figuring orbits. It was pleasant to have something to do to keep my mind off my predicament. I hardly minded even when it became obvious that I would come so close to the asteroid as to be perturbed out of all possibility of making the contact with Mars that I had projected. I hadn't really believed in that anyway. And, when I discovered that I was in a collision orbit, it was more of a relief than otherwise. Get it over with in a hurry. Starvation is a slow and tedious way to blast off. A short life and a merry one, Denby, that's what you always said. Or did you? Well, it doesn't matter, you're going to get it anyway.

It was a fine sight. I don't know anything more impressive to watch than a planet, even a little two-hundred-mile chunk of rock like this one, swinging up out of empty space and taking on size and form. White and round as a snowball, and spinning lazily like a snowball thrown through the air. This one was going to hit me right on the knob.

The twelve-hour rotation of the asteroid must have swung the spot past me three or four times before I paid any attention to it. A black smudge it was, round, but with ragged edges like a starfish. A jet scorch if I ever saw one. I swallowed my stomach on the third gulp, and as soon as I stopped being dizzy I looked again. A jet scorch it was, and a few hundred yards away the sunlight glittered on a round lump that couldn't be anything but a Mitchell blister. Of all the rocks in the Belt, I would bump into one with a station on it. Nice catch, Denby!

I crawled into the bulger again in case I might set her down a little heavy, and got at the controls. Landing on the steering jets is tricky, especially when there is no atmosphere to help you brake down. I never would have made it if it had been a full-sized planet.

I set her down heavy, all right, but I'm not ashamed of it. Try it yourself some time. We crashed in a gully some sixty

feet deep, about a mile from the station. The shock broke my belt and threw me against the control panel, and I felt a couple of ribs crack. That was cheap. When my head cleared a little I could hear rocks rattling on the hull and air whistling out through a hole in her somewhere. I made a dash for the lock and kicked the emergency hatch release and blew outside with the rest of the air.

Just in time. Looking up, I could see the whole side of the cliff coming loose and toppling toward me like the crest of a breaker. I gritted my teeth and jumped. When I looked back there was nothing to see but a heap of rock.

Under this light gravity, the leap took me well above the cliffs. I could see a glint of sunlight on the Mitchell in the distance, and a spacesuit-clad figure coming over the surface in long leaps. One jump had been enough for me—I hung onto my ribs and did my best to walk. That isn't easy with a gravity a couple of hundredths Earth normal, but at least when you fall you don't hit very hard.

In a minute or two I came up with my rescuer, and we touched helmets to talk. I stared through the faceplate of the other suit. "Hello, Betty," I said. Then I passed out.

**W**HEN I woke up someone was swabbing my face with a damp cloth. It was very pleasant. I opened my eyes, and it was Betty, all right.

"Hello yourself," she said, and smiled. It was the old smile, crinkled nose and all. I took back what I had told myself about being a fool. I sat up and reached out my arms, but the ribs got in the way.

"Tom!" she cried. "What's the matter?"

"I bent a couple of ribs a little too far," I answered. "Nothing vital."

"Here, let me help!"

Between us we pulled the bulger off me and got rid of my packet and shirt. Betty crossed the room and began to rummage in a locker. I looked around. I was on a folding cot in one of the sleeping cubicles of a Mitchell. Apparently Betty had carried me in after I collapsed. That was not as bad as it sounds—I only weighed three or four pounds here, and I was light-

headed besides. The old girls with the spinning wheel seemed to have changed their minds after they blew my jet for me. They send me an asteroid, and it comes near enough to land on more or less and there is a party on it, and it is the Day expedition, including Betty. Thanks, girls! I would have bowed to them, but on account of my ribs I only nodded.

Betty came back with a pair of scissors and a roll of plaster, cut loose my undershirt, and began building a straightjacket. I averted my attention from the fact that it would have to come off some time.

"Where's your uncle and the rest of the crew?" I asked.

"Everyone but me is off on a field trip to Thule. Opposition was a week or two ago, and they're due back any time. Thule seems to be our last chance. We haven't found out a thing so far. But Thule is half-way to Jupiter from here and right on the edge of the Warp, or where the Warp ought to be. If they don't bring back some significant data from there we may begin to think you are right after all and there isn't any such thing."

"I knew it all along," I informed her. "Not that I'm likely to have a chance to prove it, with the Aspera dead and buried."

"Be still a minute—how am I going to tape you up if you keep on talking? Blow out your breath." She ripped off half a meter of tape and slapped it onto my side.

Presently she stepped back to inspect the job. "It'll do, I guess," she said, frowning critically. "For the time being, anyway. Uncle Ed will be back in a couple of days, and he can fix it right."

"Oh no he can't. When this comes off it stays off."

"Why Tom! Are you afraid of a little tape?"

"You bet I am. Give me a ray-burn any day."

"All right then." She picked up my shirt and began helping me into it. "But if you grow up lopsided or chicken-breasted, don't blame me!"

I didn't pay any attention. I tried my arms again, and they reached out all right. It was a good job of taping.

She pushed me away and stood up.

"Careful of your ribs, mister," she warned. "Come on, you don't belong in here anyway—this is the women's side."

I hunched myself into my jacket and followed her through the door and down a short passage which led into a sort of utility room in the midsection of the blister. One end was taken up with shelves and cases of food and other supplies, a diatherm cooker, distillation unit, mess table and the like; at the other, to the sides of the air lock, were two or three desks with books and papers. One of the desks held a periscope which reflected the star-speckled black of space and a small bright ball which was the distant sun. A row of thick glass portholes at each end of the room let in a fair amount of light.

OUT in the center of the floor were several chairs which looked almost comfortable, and a large table with a ping-pong net on it. The thought of trying to predict the behavior of a ping-pong ball under gravity of point-o-two or thereabouts made me dizzy again.

I sat down in the easiest-looking chair and Betty took a seat opposite me. The solemn look was on her face again.

"I should have mentioned it before," she apologized, "but I am glad to see you, Tom. And amazed, of course. What happened to your job at Translunar?"

"Translunar doesn't like me any more. I took the prize money to fit out the Aspera and sneered at the job."

"Oh, Tom!" I liked the way she said it this time. "Then you are free-lancing?"

"Free is the word for it. The list they put me on is black as the night side of Pluto. No outfit in space would hire me for a swamper after this. And you can't space-rat without a ship to rat in. As a matter of fact, I have a great future behind me. All because I had a great idea."

"What was the idea, Tom? I know you didn't come all the way out here just to talk to me."

"Well, it would have been worth it, but that wasn't it. I was on my way to Jupiter to prove once and for all that there isn't any Warp and that there are pirates on Callisto. Then I broke down a few hours out of Mars, with too much velocity to

get back on the chemicals. After a while you came along, and I saw the camp, and managed to set her down. I didn't know this was your rock."

"You have the craziest ideas, Tom!"

"All right, let it go. I'm done with crazy ideas. The wildest one I have at the moment is to talk your uncle into thinking that I can earn my keep here and a passage back to Earth."

"Good—and I'll talk him into not sending you back with the Patrol."

"The Patrol?"

"Yes—our time here is half gone, and they are due any day to pick up our data and preliminary report. They're overdue right now, as a matter of fact. I thought you were the Patrol cruiser at first. Our figures are hardly worth coming after, unless they've got some good readings on Thule."

I had stopped listening. Patrol regulations make the rescue of distressed spacemen mandatory. They would take me to Earth and turn me loose with a hundred credits bonus, and I could look for a job as a shoe salesman. Or write my memoirs. The Tale of a Disappointed Space Hound. That ought to sell. Back to Earth. I wasn't happy about it. I had crossed four hundred million miles of space to find Betty and I wanted to stay.

I looked at her. She crinkled her nose at me and stood up. "Come on, Tom, don't look so glum. How about something to eat? If you're not hungry I am."

She crossed to the galley end of the room and I followed. Cooking was simple—stick a couple of cans in the diatherm and wait until the signal beeped. It tasted better than what I had had on the Aspera, though. I told her so, and Betty laughed. Then suddenly she jumped to her feet.

"Look, on the screen, Tom!" She pointed. There was a bright streak half filling the field of the periscope. Betty hurried across the room and I got up as quickly as I could and followed her.

"It must be the Patrol ship!" she cried. "They will have letters aboard, and newspapers!" She was practically dancing with excitement. I wasn't so happy.

We watched her come in. She was a small ship, not much larger than the As-

pera, but it was a spectacular sight at that. An atom-jet blast in space is quite a blaze of glory.

They had a sharp lad at the controls. He had to be—I could tell from the shape and color of the blast that the emission was soft as a raw egg. He must have had twenty percent fluctuation. That was queer—you'd think the Patrol would have brains and money enough to put in a new power slug when it was needed. That one could go dead any time. But the pilot was good. He set down easy, right in the center of the scorch.

As soon as she was down the hatch swung open and half a dozen men in bulgers stepped out and floated to the ground. Betty had the outer air lock door open for them already. They crossed the ground quickly, in the long leaps of men accustomed to low gravity.

I noticed suddenly that the palms of my hands were damp. That made me wonder. It wasn't so much that I was scared by the idea of going back to Earth with the Patrol. Something was wrong with the set-up somewhere, and I couldn't place it. Then it hit me. That ship out there was no Patrol cruiser—she was the Astra! My father's ship! It had been years ago and I was just a kid at the time, but there was no chance of a mistake—I had practically lived aboard that wagon all the while she was on the ways. That meant my father had found the hideout on Callisto again, and hadn't got away this time. The Astra had been captured and converted to a pirate ship. As for my father, there was no doubt now about what had happened to him. Lance Denby would never have been taken alive.

These six men crossing the ground toward us were a bunch of Hassley's cutthroats.

"Betty!" I yelled. "Shut the lock quick!"

She threw me a startled look, but sprang to obey. It was too late.

#### IV

**T**HEY WERE IN. ALL big monks with their helmets peeled back, and every one with a blaster in his hand you could put your thumb in. They came

in **fast** and fanned out to cover the room in a way that showed they knew their business, and the muzzles of their weapons never wavered an inch. I looked at Betty. She was quite pale. It didn't matter about the lock. We couldn't have kept them out anyway.

I didn't have a chance to tell her so. The boss of the show spoke. "Over against the wall," he said. Quietly, but we went. It was that kind of voice. There was no tone to it, and not much volume. It reminded me of the noise we used to make by rubbings rocks together under water when we were kids. He grinned, exposing thirty or forty grayish teeth shaped like old-fashioned tombstones. His whole face was grayish and stony, with heavy brows and a thick jaw. The 20 cm blaster in his hand looked like a water pistol. I might have called it a slight case of acromegaly, but I was not interested in diagnosis at the moment. I was busy getting mad. That was easy enough with such a subject, but I didn't see what I was going to do about it.

He followed us over to the wall, walking slowly, not cautiously, but as if he knew there was no need to hurry.

"Where's the rest of the crew?" he asked. He looked at me.

"That's all there is," I said. "There isn't any more." I didn't see any use in lying to him, but I didn't see any use in telling him the truth, and I would sooner lie to him than not. That's the way I felt about it.

"Wise, huh?" he said. His expression didn't change. He didn't have any expression.

He turned to Betty. "Where's the rest of the crew?"

"There aren't any more. There's just the two of us." Good girl. She was going to back my play. If I had any play. I was trying, but looking at that face slowed my mind down into first gear.

Back to me again. "Where's your ship?"

"Ship?" I asked. The innocent line. "We don't have a ship."

He looked toward the rest of his gang. Two of them came up alongside of me and grabbed my elbows.

"Do you hear that?" he complained. "They don't have any ship. They walked all the way out here." He moved in close

to me. His face wasn't really rock or I could have seen the moss on it.

"Look, chum," he said. "Do you have to get wise? This ain't no game of marbles. I'm telling you."

"Take it or leave it," I cracked. "What would we want with a ship? They bring us out here and leave us, and a year later they come back to get us and drop off the new crew." It sounded like a good way to run an asteroid station at that.

He cursed. It had a horrible sound, in that muted rocky voice of his. He faced Betty again. "That true?"

"Of course it's true!" The contempt in her voice would have withered him, only stones don't wither.

I still couldn't see where we were getting. Hold him here until the Patrol cruiser came in? That wouldn't work. If the Patrol boat came in first they would think the Astra was the expedition ship, and Ed Day would think it was the Patrol. And Stoneface here would sit back just like a hunter in a duck blind and wait for an easy shot. If we could figure out some way to signal. Come on, Denby, think it out. There's an answer to everything.

He was talking again. "How long have you been here?"

"Six months."

"When's that ship due?"

"In six months more."

"How long?" This was to Betty.

"Five months and twenty-three days, to be exact," she told him. "Earth time."

He cursed again. I was sweating. The way Betty was following my lead, she must think I had a plan. Maybe I did, at that. It was pretty hazy, but the way Stony kept worrying about a ship made me think. That, and the wobbly jet I had seen.

"Six months, huh?" he mused. "Well, we can wait. It won't be bad. Not with the company we'll have." He put one of his big shovel-shaped hands on Betty. "No, not bad at all."

I jerked one elbow loose and swung at his jaw. I might have done better if it hadn't been for the ribs, but as it was I felt it all the way up to my shoulder. His head snapped back but his feet never moved. The two gunsels grabbed my hands and twisted them up under my

shoulder blades.

OLD Stony stood for a minute rubbing his jaw and looking at me. Just looking. It was a look like you might see in the eye of a snake. Then he hit me in the cheek with the flat of his hand. It wasn't a slap. I tasted blood. He swung his foot at my ankles, and I hit the floor. He swung it again. I felt another rib let go.

"Pick him up," he said. "Tie him in that chair." His boys did as they were told.

He came and stood in front of me. "I told you this wasn't no game of marbles. Now look, chum. You're going to be a good boy and keep your trap shut and do like I tell you or I'm going to take you apart. That's going to be fun, too, only not for you." I didn't say anything.

Stoneface ground around on his heel and began grating out orders. "Slats and Joker, you tie up the girl till I decide what to do with her. Tubby, see what they've got to eat in this shack. Trigger—back to the ship and tell the boys we'll relieve them in an hour and they're to keep their eyes open in the meantime. Bring back a couple of bottles of juice with you. Karns, you keep a rod on this monkey in case he didn't understand what I told him."

In a few minutes they were all sitting around the mess table washing down about a week's supply of Expedition rations with raw juice. When they had finished Stony belched vigorously, stood up, and walked over to look out of one of the portholes. I followed him with my eyes, and was surprised to see that it was night outside. I hadn't realized how short these six-hour days would be. Stony began talking again.

"Slats, you and Karns get back to the ship and let the other boys come over here and stretch their legs and get some chow. After that we all got to get busy and ditch the ship and set up the artillery on the ground to get ready for that Patrol boat when it shows up. Me, I got some other business on hand."

He walked over to Betty and picked her up under one arm, chair and all.

"Put the girl down!" I told him.

He set her down on the deck again and came at me, balling up one of his cobblestone fists. "I said I was going to take you

apart if you didn't act nice," he snarled. "Well, here goes!"

"Wait a minute," I said. "I know what you want and I know where to get it."

That stopped him. "What do you mean?" he growled.

"I mean a new power slug. I saw how sloppy your jet was when you came in. You haven't got one G-hour left. You might take off from a little rock like this, but you'd never make Venus again and you know it. That's why you're willing to wait around here for six months on the slim chance of being able to shoot down a Patrol cruiser and salvage a slug out of it."

He blinked when I mentioned Venus, but I didn't let him see I noticed it. My mind was beginning to click now. This wasn't the way I would have preferred to handle the matter, but I didn't see anything else to do.

Stony ground his teeth at me. "Well?"

"I know where you can get a new slug just for picking it up."

One of his hands reached out and wrapped around my neck, and he started shaking. "Where is it then!" he gritted. "Out with it!"

"I didn't say I was going to tell you," I reminded him, as soon as I started breathing again. "I'm willing to talk about it, though."

"I'm listening. But talk fast, chum."

"Cut the girl loose, and me too."

Stoneface waved a command, and in a moment we were rubbing the circulation back into our wrists. Betty wasn't looking at me.

"Here's my proposition," I said. "I'll trade you the slug for the girl. You give her a suit with full tanks and rations and turn her loose now. That will give her enough head start so you won't be able to find her. Then in the morning I'll show you where this slug is, and as soon as you get it you take off and we'll all be happy. That saves you a six months' wait and a fight with the Patrol."

"Tom!" Betty broke out. "You're not going to let these apes get away!"

"Sorry, Betty. It's the only way."

"Oh, you—!" She stamped her foot. She was crying. I couldn't blame her for being mad. She was not the kind to stop

fighting anywhere this side of the last ditch. Well, for me it was the last ditch when he put his hand on her.

"Can the chatter, you two," Stony gritted. "Look, how do I even know you got a slug?"

"You don't," I agreed. "That's the chance you take."

"Yeah. And you know the chance you're taking if you don't produce?"

"I can imagine," I assured him.

"Okay," he decided. "I'll play. But I'm warning you, chum, if you're trying to run a bluff—you'll be sorry!" He turned to Betty. "Come on, babe, climb into your rubber pants and scram!"

Betty didn't even glance in my direction while she was putting on her space-suit. She gave me one look as she went out through the air lock, and one was enough. It was pure poison.

## V

I WAS GLAD BEFORE MORNING that the nights on Vesta were only six hours long. Soon after Betty left, a couple of Stony's gorillas went over to the ship and sent back the two that had been left on watch. The new ones weren't any prettier to look at, and they scoffed up just as big a share of rations as the others had, and with even less manners, if possible. After that one of them got out a deck of mouldy-looking cards, and the whole crew sat down to a game of poker.

They had me tied down on the chair again by this time, and after the second bottle of juice had been around once or twice they hit on the quaint idea of using me for stakes. Each winner of a pot was to have the right to choose which portion of my anatomy he would separate from the rest of me by force and violence in case I didn't come through with the power slug in the morning.

By the time they had reached the stage of marking out their respective territories with chalk, Stony made them quit. He told them that when he got through with me there wouldn't be enough left for them to argue about.

My ribs weren't doing me any good, either . . .

Someone was cuffing me on the head. I opened my eyes and it was bright day.

"On your feet," Stony gritted. "You and me have got a date for a little game of truth or consequences. Remember?"

I staggered up and scrubbed some of the fatigue out of my face with my hands. Someone shoved a bulger at me. I saw that it was mine, and the tanks and ration kits were full. I crawled in and clamped down the fishbowl.

I led the way into the lock, with Stony and several of his lads at my heels. In a minute the lock clicked and I opened the door and stepped outside. The sun was only a couple of degrees high and the long shadows of the blister and the ship lay sharp and dark across the gray-white terrain. The stars burned against the black sky, very remote and indifferent. I tried to swallow the dryness in my mouth and throat, but it wouldn't go down.

A nudge from the muzzle of a blaster brought me back to the business in hand. I set off across the rocks, taking it as easy as I could without making my convoy too impatient. I headed straight for the Aspera. No need stalling now. Either Betty had had time to hide herself by now or it didn't matter.

When we pulled up at the scene of the wreck and I pointed to the pile of boulders and gravel that hid the remains of the ship, I thought Stony was going to share me out among his men without stopping to argue. I managed to show him a corner of bent hull plate sticking out of the rubble just in time. He put the boys to work tossing rocks.

It took a long time. I had counted on that. By the time the air lock was clear the sun was half-way down the sky again. Jockeying the slug out of the reaction chamber and getting it into its lead case was slow work, too. While it was going on Stony and I waited in the cabin, along with Karns. It seemed the boss fancied him as a gun-pointer.

I had a hard time to manage to retrieve my hand sextant from the corner where it had fallen without attracting their attention, but I made it. I stuffed it into my possum pouch and nobody made any objection.

Except for that, Stony had played it smart all along. The only other mistake he made was at the end, when his gang came back into the cabin with the slug all snugged down in its shield. He let me crawl out first. It was black dark outside by now, and I jumped without even waiting to get to my feet. And this time I kept on jumping.

**T**HEY didn't spend much time trying to find me. I was out of range of their headlights in two leaps, and why would Stony think it made any difference to have me floating in the dark, with no weapons? Of course he would have blasted me down before he took off if I had been on hand—I wasn't fooling myself about that—but he had too good a head for the main chance to waste time on such a minor pleasure. The way he had it figured, Betty and I would both be dead long before another ship touched Vesta, and even if we weren't, we would say we were raided by Venusian pirates, and he would be long gone.

They headed straight back to the ship, and Stony put as many of his crew as weren't need for changing slugs to looting the blister. I could see their lights going back and forth for an hour, and then they all crawled into the ship and buttoned down.

I figured they wouldn't leave the blister standing, and I was right. One HE shell took care of that. Then they blasted off. I had my sextant and watch on them, and was writing down data on my knee-pad as fast as I could take them. I was using Altair and Vega for a fix, and throwing in Polaris every now and then for good measure. I kept it up most of the night. Their jet-flare winked out suddenly just before I lost them over the horizon.

After that there was nothing to do but go back to where the blister used to be and wait.

Betty came in just after the sun lifted over the horizon. She wouldn't let me get close enough to touch helmets so that I could explain. I gave up after a few attempts and we just sat.

It was a long wait. I rummaged around in the debris and rigged up some fair-

sized sheets of dural to keep off the sun—one for me and one for Betty. At least she was willing to use it. After a while I poked around some more and found a copy of Spatial Navigation Tables that wasn't completely reduced to confetti, and started trying to work up my figures.

About noon the next day, Vesta time, we picked up the jet-flare of a ship breaking in. She came in fast, under about three G's of acceleration. That looked like Patrol style to me, and sure enough, as soon as the dust settled I could see the blue star on her nose. That was good. I was afraid it might be the expedition ship coming back, and guns were indicated for the next hand in this game.

We didn't even wait for them to get out the ladder. Betty leaped for the port as soon as they cracked the hatch, and I was right after her. I slammed the hatch shut and motioned the landing party back inside. The shavetail in charge wasn't happy about it, but I didn't give him a chance to object. In a minute he got the idea that I meant business, and opened the inner door.

I peeled back my helmet. "Where's the CO?"

"Right here!" said a voice at my elbow. I turned and looked. He was only medium-sized, but he had a hard jaw and a hard eye. "What's going on here?"

"Plenty is going on!" This was Betty. "Pirates took over the expedition base, and this man gave them a power slug to make their getaway."

"Shut up!" I told her. "Let me tell this so it makes sense."

"Makes sense! Does it make sense to let those thugs off scot-free, with eighteen hours head start? We'll never catch them!"

"Yes we will. And besides, if I'd let them stay, they would have blasted this ship out of the sky. And besides that, I had to give them something to let you loose—"

"Suppose you both shut up," the CO suggested, "and come up to the bridge and let me have the straight of this."

The three of us went into the control cabin which was unoccupied at the moment. The CO motioned us to chairs.

We peeled off our bulgers and sat down.

"Now—Miss Day, I believe? I'm Allison, Commander, in charge. Let's have your version."

**B**ETTY gave him the story of all that had happened since I landed on Vesta, and enough of the background to make the story clear as far as she knew it. Allison buzzed for the medical officer when she got to the part about my ribs, and I was untaped and taped again. I was glad enough by now to have someone else worrying about them for awhile besides me.

Aside from that he made no comment until Betty had finished. Then he turned on me, and his eye was harder than ever.

"Well, Denby? I realize that you're not sworn in as a Patrolman, and I suppose you thought you were acting chivalrously. But it's rather a tradition that all spacemen consider themselves unofficial deputies of the Patrol when the occasion arises, and it seems to me that even a civilian might have kept his mouth shut about that slug. As for their shooting us out of the sky, we would have something to say about that. We know how to operate against land batteries."

"I don't doubt that," I assured him. "But I think you'll agree that a ship in space with no drive is an easier set-up."

"No drive? What do you mean?"

"Just that. Stony and his boys are sitting out in space with a blown tube waiting for you to come along and pick them up. If you want to know exactly where give these figures to your navigator and let him finish them on the computer. I've got a fix on them for every ten minutes from blastoff to the time their main drive tube blew four hours and forty-three minutes later."

"How do you know their tube blew? I never heard of such a thing."

"Brother, I did! And if you don't know how fast a Group IV slug can chew the guts out of a graphite liner, just ask me. But those lads didn't know. When they left Earth at the end of the Polar War, Group IV fissionables weren't heard of, nor tungstil. When I gave them the Group IV slug that the ground crew gave me by

mistake on Phobos, they didn't know the difference."

I looked at Betty, and so help me, she was crying again.

"I'm sorry," I said. "I couldn't tell you what the score was before without tipping them off."

She came over and took hold of my hand. She didn't say anything, but then she didn't need to.

Allison was pushing buttons like mad, and the bridge began to look like a sub-sea train at rush hour. When the navigator came in the CO handed him my notes.

"Figure an interception orbit from these observations. Blastoff in twenty minutes.

"Here, sergeant, take a detail and lay out a signal panel for the Day Expedition when they return, and this message to tell them what happened and where we've gone. Quigley! (this was the exec, I gathered) all hands to space stations—blastoff at once.

"Denby, I think you and Miss Day had better come along with us. I imagine you've both had enough of bulgers for a while, and I think you might like to be in on the end of this. Right?"

I pushed some of Betty's hair out of my eyes and looked up.

"Right!" I said. "I have a personal matter to settle with Stoneface. And anyway, I want to be along to see you don't shoot up Astra too bad. She was Lance Denby's ship, you know, and she's mine now, and I'm going to need her if I'm going to be the first space rat on the ground in the moons of Jupiter."

Allison goggled at this, but made a quick recovery. "Okay, Denby. And you know there's a reward out for Hassley or any of his group. I think that will take care of any repairs."

The navigator came back from the computer and handed Allison a sheet of paper. "Here's your course, sir. Quickest interception in thirty-three hours. They were headed for Jupiter, all right."

"There goes your Warp," I gloated.

"Looks like it," Allison agreed. "Here, have a cigarette."

I took it and lit up. It was quabba, and it tasted great.