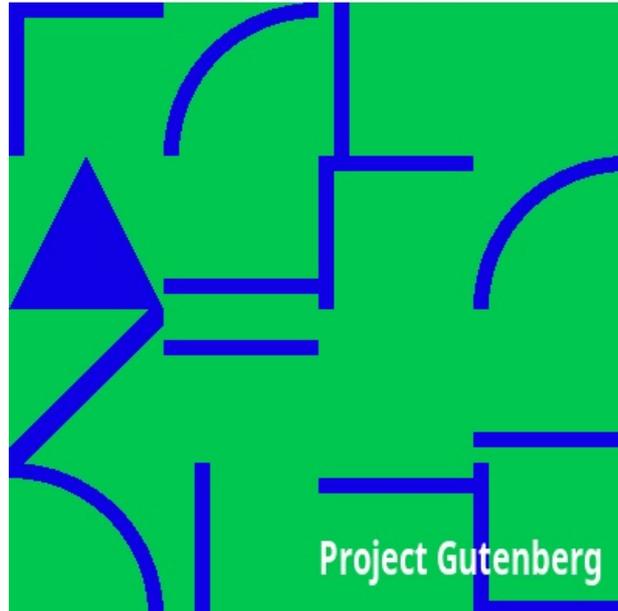

Out Around Rigel

Robert H. Wilson



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*** START OF THIS PROJECT GUTENBERG EBOOK OUT AROUND RIGEL ***

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Transcriber's notes are indicated in the text by [TN-#].

I caught his hand and pulled him to safety.
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Out Around Rigel

By Robert H. Wilson

An astounding chronicle of two Lunarians' conquest of time and interstellar space.

The sun had dropped behind the Grimaldi plateau, although for a day twilight would linger over the Oceanus Procellarum. The sky was a hazy blue, and out over the deeper tinted waves the full Earth swung. All the long half-month it had hung there above the horizon, its light dimmed by the sunshine, growing from a thin crescent to its full disk three times as broad as that of the sun at setting. Now in the dusk it was a great silver lamp hanging over Nardos, the Beautiful, the City Built on the Water. The light glimmered over the tall white towers, over the white ten-mile-long adamantine bridge running from Nardos to the shore, and lit up the beach where we were standing, with a brightness that seemed almost that of day.

"Once more, Garth," I said. "I'll get that trick yet."

The skin of my bare chest still smarted from the blow of his wooden fencing sword. If it had been the real two-handed Lunarian dueling sword, with its terrible mass behind a curved razor edge, the blow would have produced a cut deep into the bone. It was always the same, ever since Garth and I had fenced as boys with crooked laths. Back to back, we could beat the whole school, but I never had a chance against him. Perhaps one time in ten—

"On guard!"

The silvered swords whirled in the Earth-light. I nicked him on one wrist, and had to duck to escape his wild swing at my head. The wooden blades were now locked by the hilts above our heads. When he stepped back to get free, I lunged and twisted his weapon. In a beautiful parabola, Garth's sword sailed out into the water, and he dropped to the sand to nurse his right wrist.

"Confound your wrestling, Dunal. If you've broken my arm on the eve of my flight—"

"It's not even a sprain. Your wrists are weak. And I supposed you've always been considerate of me? Three broken ribs!"

"For half a cent—"

He was on his feet, and then Kelvar came up and laid her hand on his shoulder. Until a few minutes before she had been swimming in the surf, watching us. The Earth-light shimmered over her white skin, still faintly moist, and blazed out in blue sparkles from the jewels of the breastplates and trunks she had put on.

When she touched Garth, and he smiled, I wanted to smash in his dark face and then take the beating I would deserve. Yet, if she preferred him— [TN-1]And the two of us had been friends before she was born. I put out my hand.

"Whatever happens, Garth, we'll still be friends?"

"Whatever happens."

We clasped hands.

"Garth," Kelvar said, "it's getting dark. Show us your ship before you go."

"All right." He had always been like that—one minute in a black rage, the next perfectly agreeable. He now led the way up to a cliff hanging over the sea.

"There," said Garth, "is the *Comet*. Our greatest step in conquering distance. After I've tried it out, we can go in a year to the end of the universe. But, for a starter, how about a thousand light-years around Rigel in six months?" His eyes were afire. Then he calmed down. "Anything I can show you?"

Editor's Note: The manuscript, of which a translation is here presented, was discovered by the rocket-ship expedition to the moon three years ago. It was found in its box by the last crumbling ruins of the great bridge mentioned in the narrative. Its final translation is a tribute at once to the philological skill of the Earth and to the marvelous dictionary provided by Dunal, the Lunarian. Stars and lunar localities will be given their traditional Earth names; and measures of time, weight, and distance have been reduced, in round numbers, to terrestrial equivalents. Of the space ship

described, the *Comet*, no trace has been found. It must be buried under the rim of one of the hundreds of nearby Lunar craters—the result, as some astronomers have long suspected and as Dunal's story verifies, of a great swarm of meteors striking the unprotected, airless moon.

I had seen the *Comet* before, but never so close. With a hull of shining helio-beryllium—the new light, inactive alloy of a metal and a gas—the ship was a cylinder about twenty feet long, by fifteen in diameter, while a pointed nose stretched five feet farther at each end. Fixed in each point was a telescopic lens, while there were windows along the sides and at the top—all made, Garth informed us, of another form of the alloy almost as strong as the opaque variety. Running half-way out each end were four "fins" which served to apply the power driving the craft. A light inside showed the interior to be a single room, ten feet high at the center of its cylindrical ceiling, with a level floor.

"How do you know this will be the bottom?" I asked, giving the vessel a shove to roll it over. But it would not budge. Garth laughed.

"Five hundred pounds of mercury and the disintegrators are under that floor, while out in space I have an auxiliary gravity engine to keep my feet there."

"You see, since your mathematical friends derived their identical formulas for gravity and electromagnetism, my job was pretty easy. As you know, a falling body follows the line of least resistance in a field of distortion of space caused by mass. I bend space into another such field by electromagnetic means, and the *Comet* flies down the track. Working the mercury disintegrators at full power, I can get an acceleration of two hundred miles per second, which will build up the speed at the midpoint of my trip to almost four thousand times that of light. Then I'll have to start slowing down, but at the average speed the journey will take only six months or so."

"But can anyone stand that acceleration?" Kelvar asked.

"I've had it on and felt nothing. With a rocket exhaust shoving the ship, it couldn't be done, but my gravitational field attracts the occupant of the *Comet* just as much as the vessel itself."

"You're sure," I interrupted, "that you have enough power to keep up the acceleration?"

"Easily. There's a two-thirds margin of safety."

"And you haven't considered that it may get harder to push? You know the increase of mass with velocity. You can't take one-half of the relativity theory without the other. And they've actually measured the increase of weight in an electron."

"The electron never knew it; it's all a matter of reference points. I can't follow the math, but I know that from the electron's standards it stayed exactly the same weight. Anything else is nonsense."

"Well, there may be a flaw in the reasoning, but as they've worked it out, nothing can go faster than light. As you approach that velocity, the mass keeps increasing, and with it the amount of energy required for a new increase in speed. At the speed of light, the mass would be infinite, and hence no finite energy could get you any further."

"Maybe so. It won't take long to find out."

A few of the brightest stars had begun to appear. We could just see the parallelogram of Orion, with red Betelgeuse at one corner, and across from it Rigel, scintillant like a blue diamond.

"See," Garth said, pointing at it. "Three months from now, that's where I'll be. The first man who dared to sail among the stars."

"Only because you don't let anyone else share the glory and the danger."

"Why should I? But you wouldn't go, anyway."

"Will you let me?"

I had him there.

"On your head be it. The *Comet* could hold three or four in a pinch, and I have plenty of provisions. If you really want to take the chance—"

"It won't be the first we've taken together."

"All right. We'll start in ten minutes." He went inside the ship.

"Don't go," Kelvar whispered, coming into the *Comet's* shadow. "Tell him anything, but don't go."

"I've got to. I can't go back on my word. He'd think I was afraid."

"Haven't you a right to be?"

"Garth is my friend and I'm going with him."

"All right. But I wish you wouldn't."

From inside came the throb of engines.

"Kelvar," I said, "you didn't worry when only Garth was going."

"No."

"And there's less danger with two to keep watch."

"I know, but still...."

"You are afraid for *me*?"

"I am afraid for you."

My arm slipped around her, there in the shadow.

"And when I come back, Kelvar, we'll be married?"

In answer, she kissed me. Then Garth was standing in the doorway of the *Comet*.

"Dunal, where are you?"

We separated and came out of the shadow. I went up the plank to the door, kicking it out behind me. Kelvar waved, and I called something or other to her. Then the door clanged shut. Seated before the control board at the front of the room, Garth held the switch for the two projectors.

"Both turned up," he yelled over the roar of the generators. His hands swung over and the noise died down, but nothing else seemed to have happened. I turned back again to look out the little window fixed in the door.

Down far below, I could see for a moment the city of Nardos with its great white bridge, and a spot that might be Kelvar. Then there was only the ocean, sparkling in the Earth-light, growing smaller, smaller. And then we had shot out of the atmosphere into the glare of the sun and a thousand stars.

On and up we went, until the moon was a crescent with stars around it. Then Garth threw the power forward.

"Might as well turn in," he told me. "There'll be nothing interesting until we get out of the solar system and I can put on real speed. I'll take the first trick."

"How long watches shall we stand?"

"Eighteen hours ought to match the way we have been living. If you have another preference—"

"No, that will be all right. And I suppose I might as well get in some sleep now."

I was not really sleepy, but only dazed a little by the adventure. I fixed some things on the floor by one of the windows and lay down, switching out the light. Through a top window the sunlight slanted down to fall around Garth, at his instrument board, in a bright glory. From my window I could see the Earth and the gleaming stars.

The Earth was smaller than I had ever seen it before. It seemed to be moving backward a little[TN-2], and even more, to be changing phase. I closed my eyes, and when I opened them again, sleepily, the bright area was perceptibly smaller. If I could stay awake long enough, there would be only a crescent again. If I could stay awake—But I could not....

Only the rattling of dishes as Garth prepared breakfast brought me back to consciousness. I got to my feet sheepishly.

"How long have I slept?"

"Twenty hours straight. You looked as if you might have gone on forever. It's the lack of disturbance to indicate time. I got in a little myself, once we were out of the solar system."

A sandwich in one hand, I wandered over the vessel. It was reassuringly solid and concrete. And yet there was something lacking.

"Garth," I asked, "what's become of the sun?"

"I thought you'd want to know that." He led me to the rear telescope.

"But I don't see anything."

"You haven't caught on yet. See that bright yellowish star on the edge of the constellation Scorpio. That's it."

Involuntarily, I gasped. "Then—how far away are we?"

"I put on full acceleration fifteen hours ago, when we passed Neptune, and we have covered thirty billion miles—three hundred times as far as from the moon to the sun, but only one half of one per cent of a light-year."

I was speechless, and Garth led me back to the control board. He pointed out the acceleration control, now turned up to its last notch forward; he also showed me the dials which were used to change our direction.

"Just keep that star on the cross hairs. It's Pi Orionis, a little out of our course, but a good target since it is only twenty-five light-years away. Half the light is deflected on this screen, with a delicate photo-electric cell at its center. The instant the light of the star slips off it, a relay is started which lights a red lamp here, and in a minute sounds a warning bell. That indicator over there shows our approach to any body. It works by the interaction of the object's gravitational field with that of my projector, and we can spot anything sizable an hour away. Sure you've got everything?"

It all seemed clear. Then I noticed at the top three clock-like dials; one to read days, another to record the speeds of light, and the third to mark light-years traveled.

"These can't really work?" I said. "We have no way to check our speed with outer space."

"Not directly. This is geared with clockwork to represent an estimate based on the acceleration. If your theory is right, then the dials are all wrong."

"And how long do you expect to go ahead without knowing the truth?"

"Until we ought to be at Pi Orionis. At two weeks and twenty-five light-years by the dials, if we aren't there we'll start back. By your figuring, we shouldn't be yet one light-year on the way. Anything more?"

"No, I think I can manage it."

"Wake me if anything's wrong. And look out for dark stars." Then he had left me there at the controls. In five minutes he was asleep and the whole ship was in my hands.

For hours nothing happened. Without any control of mine, the ship went straight ahead. I could get up and walk about, with a weather eye on the board, and never was there the flash of a danger light. But I was unable to feel confident, and went back to look out through the glass.

The stars were incredibly bright and clear. Right ahead were Betelgeuse and Rigel, and the great nebula of Orion still beyond. There was no twinkling, but each star a bright, steady point of light. And if Garth's indicators were correct, we were moving toward them at a speed now seventy-five times that of light itself. If they were correct.... How could one know, before the long two weeks were over?

But before I could begin to think of any plan, my eye was caught by the red lamp flashing on the panel. I pressed the attention button before the alarm could ring, then started looking for the body

we were in danger of striking. The position indicators pointed straight ahead, but I could see nothing. For ten minutes I peered through the telescope, and still no sign. The dials put the thing off a degree or so to the right now, but that was too close. In five more minutes I would swing straight up and give whatever it was a wide berth.

I looked out again. In the angle between the cross hairs, wasn't there a slight haze? In a moment it was clear. A comet, apparently, the two of us racing toward each other. Bigger it grew and bigger, hurtling forward. Would we hit?

The dials put it up a little and far off to the right, but it was still frightening. The other light had come on, too, and I saw that we had been pulled off our course by the comet's attraction. I threw the nose over, past on the other side for leeway, then straightened up as the side-distance dial gave a big jump away. Though the gaseous globe, tailless of course away from the sun, showed as big as the full Earth, the danger was past.

As I watched, the comet vanished from the field of the telescope. Five minutes, perhaps, with the red danger light flickering all the time. Then, with a ghastly flare through the right hand windows, it had passed us.

Garth sat straight up. "What happened?" he yelled.

"Just a comet. I got by all right."

He settled back, having been scarcely awake, and I turned to the board again. The danger light had gone out, but the direction indicator was burning. The near approach of the comet had thrown us off our course by several degrees. I straightened the ship up easily, and had only a little more difficulty in stopping a rocking motion. Then again the empty hours of watching, gazing into the stars.

Precisely at the end of eighteen hours, Garth awakened, as if the consummation of a certain number of internal processes had set off a little alarm clock in his brain. We were forty-one hours out, with a speed, according to the indicator, of one hundred and twenty-eight times that of light, and a total distance covered of slightly over one quarter of a light-year. A rather small stretch, compared to the 466 light-years we had to go. But when I went back for a look out of the rear telescope, the familiar stars seemed to have moved the least bit closer together, and the sun was no brighter than a great number of them.

I slept like a log, but awakened a little before my trick was due.

Exactly on schedule, fourteen days and some hours after we had started off, we passed Pi Orionis. For long there had been no doubt in my mind that, whatever the explanation, our acceleration was holding steady. In the last few hours the star swept up to the brilliance of the sun, then faded again until it was no brighter than Venus. Venus! Our sun itself had been a mere dot in the rear telescope until the change in our course threw it out of the field of vision.

At sixty-five light-years, twenty-three days out, Beta Eridani was almost directly in our path for Rigel. Slightly less than a third of the distance to the midpoint, in over half the time. But our speed was still increasing 200 miles a second every second, almost four times the speed of light in an hour. Our watches went on with a not altogether disagreeable monotony.

There was no star to mark the middle of our journey. Only, toward the close of one of my watches, a blue light which I had never noticed came on beside the indicator dials, and I saw that we had covered 233 light-years, half the estimated distance to Rigel. The speed marker indicated 3975 times the speed of light. I wakened Garth.

"You could have done it yourself," he complained, sleepily, "but I suppose it's just as well."

He went over to the board and started warming up the rear gravity projector.

"We'll turn one off as the other goes on. Each take one control, and go a notch at a time." He began counting, "One, two, three ..."

On the twentieth count, my dial was down to zero, his up to maximum deceleration, and I pulled out my switch. Garth snapped sideways a lever on the indicators. Though nothing seemed to happen, I knew that the speed dial would creep backward, and the distance dial progress at a slower and slower rate. While I was trying to see the motion, Garth had gone back to bed. I turned again to the

glass and looked out at Rigel, on the cross hairs, and Kappa Orionis, over to the left, and the great nebula reaching over a quarter of the view with its faint gaseous streamers.

And so we swept on through space, with Rigel a great blue glory ahead, and new stars, invisible at greater distances, flaring up in front of us and then fading into the background as we passed. For a long time we had been able to see that Rigel, as inferred from spectroscopic evidence, was a double star—a fainter, greener blue companion revolving with it around their common center of gravity. Beyond Kappa Orionis, three hundred light-years from the sun, the space between the two was quite evident. Beyond four hundred light-years, the brilliance of the vast star was so great that it dimmed all the other stars by comparison, and made the nebula seem a mere faint gauze. And yet even with this gradual change, our arrival was a surprise.

When he relieved me at my watch, Garth seemed dissatisfied with our progress. "It must be farther than they've figured. I'll stick at twenty-five times light speed, and slow down after we get there by taking an orbit."

"I'd have said it was nearer than the estimate," I tried to argue, but was too sleepy to remember my reasons. Propped up on one elbow, I looked around and out at the stars. There was a bright splash of light, I noticed, where the telescope concentrated the radiation of Rigel at one spot on the screen. I slept, and then Garth was shouting in my ear:

"We're there!"

I opened my eyes, blinked, and shut them again in the glare.

"I've gone around three or four times trying to slow down. We're there, and there's a planet to land on."

At last I could see. Out the window opposite me, Rigel was a blue-white disk half the size of the sun, but brighter, with the companion star a sort of faint reflection five or ten degrees to the side. And still beyond, as I shaded my eyes, I could see swimming in the black a speck with the unmistakable glow of reflected light.

With both gravity projectors in readiness, we pulled out of our orbit and straight across toward the planet, letting the attraction of Rigel fight against our still tremendous speed. For a while, the pull of the big star was almost overpowering. Then we got past, and into the gravitational field of the planet. We spiralled down around it, looking for a landing place and trying to match our speed with its rotational velocity.

From rather unreliable observations, the planet seemed a good deal smaller than the moon, and yet so dense as to have a greater gravitational attraction. The atmosphere was cloudless, and the surface a forbidding expanse of sand. The globe whirled at a rate that must give it a day of approximately five hours. We angled down, picking a spot just within the lighted area.

A landing was quite feasible. As we broke through the atmosphere, we could see that the sand, although blotched with dark patches here and there, was comparatively smooth. At one place there was a level outcropping of rock, and over this we hung. It was hard work, watching through the single small port in the floor as we settled down. Finally the view was too small to be of any use. I ran to the side window, only to find my eyes blinded by Rigel's blaze. Then we had landed, and almost at the same moment Rigel set. Half overlapped by the greater star, the faint companion had been hidden in its glare. Now, in the dusk, a corner of it hung ghostlike on the horizon, and then too had disappeared.

I flashed on our lights, while Garth cut out the projector and the floor gravity machine. The increase in weight was apparent, but not particularly unpleasant. After a few minutes of walking up and down I got used to it.

Through a stop-cock in the wall, Garth had drawn in a tube of gas from the atmosphere outside, and was analyzing it with a spectroscope.

"We can go out," he said. "It's unbreathable, but we'll be able to use the space suits. Mostly fluorine. It would eat your lungs out like that!"

"And the suits?"

"Fortunately, they've been covered with helio-beryllium paint, and the helmet glass is the same stuff. Not even that atmosphere can touch it. I suppose there can be no life on the place. With all this sand, it would have to be based on silicon instead of carbon—and it would have to breathe fluorine!"

He got out the suits—rather like a diver's with the body of metal-painted cloth, and the helmet of the metal itself. On the shoulders was an air supply cylinder. The helmets were fixed with radio, so we could have talked to each other even in airless space. We said almost anything to try it out.

"Glad you brought two, and we don't have to explore in shifts."

"Yes, I was prepared for emergencies."

"Shall we wait for daylight to go out?"

"I can't see why. And these outfits will probably feel better in the cool. Let's see."

We shot a searchlight beam out the window. There was a slight drop down from the rock where we rested, then the sandy plain stretching out. Only far off were those dark patches that looked like old seaweed on a dried-up ocean bed, and might prove dangerous footing. The rest seemed hard packed.

My heart was pounding as we went into the air-lock and fastened the inner door behind us.

"We go straight out now," Garth explained. "Coming back, it will be necessary to press this button and let the pump get rid of the poisonous, air before going in."

I opened the outer door and started to step out, then realized that there was a five-foot drop to the ground.

"Go ahead and jump," Garth said. "There's a ladder inside I should have brought, but it would be too much trouble to go back through the lock for it. Either of us can jump eight feet at home, and we'll get back up somehow."

I jumped, failing to allow for the slightly greater gravity, and fell sprawling. Garth got down more successfully, in spite of a long package of some sort he carried in his hand.

Scrambling down from the cliff and walking out on the sand, I tried to get used to the combination of greater weight and the awkward suit. If I stepped very deliberately it was all right, but an attempt to run sank my feet in the sand and brought me up staggering. There was no trouble seeing through the glass of my helmet over wide angles. Standing on the elevation by the *Comet*, his space-suit shining in the light from the windows, Garth looked like a metallic monster, some creature of this strange world. And I must have presented to him much the same appearance, silhouetted dark and forbidding against the stars.

The stars! I looked up, and beheld the most marvelous sight of the whole trip—the Great Nebula of Orion seen from a distance of less than one hundred and fifty light-years its own width.

A great luminous curtain, fifty degrees across, I could just take it all in with my eye. The central brilliancy as big as the sun, a smaller one above it, and then the whole mass of gas stretching over the sky. The whole thing aglow with the green light of nebulium and blazing with the stars behind it. It was stupendous, beyond words.

I started to call Garth, then saw that he was looking up as well. For almost half an hour I watched, as the edge of the nebula sank below the horizon. Then its light began to dim. Turning, I saw that the sky opposite was already gray. The dawn!

Why, the sun had just set. Then I realized. It was over an hour since we had landed, and a full night would be scarcely two hours and a half. If we were in a summer latitude, the shorter period of darkness was natural enough. And yet it was still hard to believe as, within ten minutes, it was as bright as Earth-light on the moon. Still clearer and clearer grew the light. The stars were almost gone, the center of the nebula only a faint wisp. There were no clouds to give the colors of sunrise, but a bluish-white radiance seemed to be trembling on the eastern horizon.

And then, like a shot, Rigel came up into the sky. The light and heat struck me like something solid, and I turned away. Even with my suit reflecting most of the light away, I felt noticeably warm. The

Comet shone like a blinding mirror, so that it was almost impossible to see Garth on the plain below it. Stumbling, and shielding my eyes with my hand, I made my way toward him.

He was standing erect, in his hands two old Lunarian dueling swords. There was hate in his voice as the radio brought it in my ears.

"Dunal, only one of us is going back to the moon."

I stared. Was the heat getting him? "Hadn't we better go inside," I said quietly and somewhat soothingly.

He made no reply, but only held out one of the hilts. I took it dumbly. In that instant he could have struck my head from my body, if he wished.

"But, Garth, old friend—"

"No friend to you. You shall win Kelvar now, or I. I'm giving you a sporting chance. One of your light cuts letting the fluorine inside will be as deadly as anything I can do. The one who goes back will tell of an accident, making repairs out in space. Damn you, if you don't want me to kill you where you stand, come on and fight."

"Garth, you've gone mad."

"I've been waiting ever since I got you to leave the moon. On guard!"

With a rush of anger I was upon him. He tried to step back, stumbled, had one knee on the ground, then hurled himself forward with a thrust at my waist that I dodged only by an inch. I had to cover, and in spite of myself, with the cool work of parrying, my animosity began to disappear.

And so began one of the strangest battles that the Universe has seen. Lumbering with our suits and the extra gravity, we circled each other under the blazing sky. The blue-white of Rigel shimmered off our suits and the arcs of our blades as we cut and guarded—each wary now, realizing that a touch meant death. As that terrible sun climbed upward in the sky, its heat was almost overpowering. The sweat poured off every inch of my body, and I gasped for breath. And still we fought on, two glittering metal monsters under the big blue star sweeping up to its noon.

I knew now that I could never kill Garth. I could not go back to Kelvar with his blood. Yet if I simply defended, sooner or later he would wear me down. There was just one chance. If I could disarm him, I could wrestle him into submission. Then he might be reasonable, or I could take him home bound.

I began leading for the opening I wanted, but with no result. He seemed resolved to tire me out. Either I must carry the fight to him, or I would be beaten down. I made a wide opening, counting on dodging his slow stroke. I did, but he recovered too soon. Again on the other side, with no better result. Still again, just getting in for a light tap on Garth's helmet. Then I stepped back, with guard low, and this time he came on. His sword rose in a gleaming arc and hung high for a moment. I had him. There were sparks of clashing, locked steel.

"Damn you, Dunal!" He took a great step back, narrowly keeping his balance on the sand. On another chance, I would trip him. My ears were almost deafened by his roar, "Come on and *fight*."

I took a step in and to the side, and had him in the sun. He swung blindly, trying to cover himself with his whirling point but I had half a dozen openings to rip his suit. When he moved to try to see, I would lock with him again. I watched his feet.

And as I watched, I saw an incredible thing. Near one of Garth's feet the sand was moving. It was not a slide caused by his weight; rather—why, it was being pushed up from below. There was a little hump, and suddenly it had burst open, and a stringy mass like seaweed was crawling toward his leg.

"Look out, Garth," I yelled.

How he could see through that terrible sun I do not know, but Garth swung through my forgotten guard with a blow square across my helmet glass. The force threw me to the ground, and I looked

up, dazed. The beryllium glass had not broken to let in the fluorine-filled air, but Garth was standing over me.

"That's your last trick, Dunal." His blade rose for the kill.

I was unable even to get up, but with one hand I pointed to the ground.

"Look!" I shouted again, and on the instant the thing wound itself around Garth's foot.

He swung down, hacking it loose. I had got to my feet. "Run for the ship," I cried, and started off.

"Not that way."

I looked back, and saw that I had run in the wrong direction. But it made no difference. Over a whole circle around us the sand was rising, and directly between us and the *Comet* there was a great green-brown mass. We were surrounded.

We stood staring at the creatures. Spread out to full dimensions, each one made a sphere about four feet in diameter. In the center, a solid mass whose outlines were difficult to discern; and spreading out from this a hundred long, thin, many-jointed arms or legs or branches or whatever one could call them.

The things were not yet definitely hostile—only their circle, of perhaps fifty yards radius, grew continually thicker and more impenetrable. Within the enclosed area, the only ripples we could see in the sand were heading outward. There was to be no surprise attack from below, at least; only one in mass. What, I wondered, might be a sign of friendship, to persuade them to let us go.

And then the circle began to close in. The things rolled over and over on themselves, like gigantic tumbleweeds. At one point, to the right of the direct route to the *Comet*, the line seemed thinner. I pointed the place out to Garth.

"Break through there, and make a run for it."

We charged into the midst of them with swinging blades. The very suddenness of our rush carried us half-way through their midst. Then something had my legs from behind. I almost fell, but succeeded in turning and cutting myself free. The creatures from the other side of the circle must have made the hundred yards in four or five seconds. And the rest had now covered the breach in front. It was hopeless.

And so we stood back to back, hewing out a circle of protection against our enemies. They seemed to have no fear, and in spite of the destruction our blades worked among them, they almost overcame us by sheer numbers and weight. It was a case of whirling our swords back and forth interminably in the midst of their tentacles. Against the light, the long arms were a half-transparent brown. Our swords broke them in bright shivers. Formed from the predominant silicon of the planet, the creatures were living glass!

For perhaps a quarter of an hour we were in the thick of them, hewing until I thought my arms must fall, slashing and tearing at the ones that had got underfoot and were clamping their tentacles around our legs. Only for the space-suits, we should have, by this time, been overpowered and torn into bits—and yet these garments could not be expected to hold indefinitely.

But at last there was a breathing space. The crippled front ranks dragged themselves away, and there was left around us a brief area of sand, covered with coruscating splinters of glass. Garth got the breath to say something or other encouraging. It was like old days at school.

Only this time the odds were all against us. We were still a good hundred yards from the *Comet*, and in our path stood a solid wall of the creatures. Even if we got free, they could outrace us to the goal. And with our limited strength, we could not hope to kill them all. In a minute or two, they would attack us again.

Somehow we must fight our way as long as we lasted. Perhaps they might be frightened. We threw ourselves at the side next our goal. The line gave perhaps a yard, then stiffened, and we found ourselves swallowed up in a thick cloud of brown smoke.

Poison gas! It must be shot out of their bodies, at a cost so great that it was kept as a last resort. Through the rolling vapor it was just possible to see our opponents, but they made no forward move. They were waiting for us to be overcome. Suppose their compound could eat through even

our helio-beryllium? But it did not. We were safe.

"Stand still, Garth," I whispered, counting on the radio to carry my voice. "Let them think we're dead, and then give them a surprise."

"All right."

Long, long minutes.... If only they did not know that it was the customary thing for a dead man to fall.... Slowly they began to move in.

Then Garth and I were upon them. They halted as if stupefied. We had hacked our way half through their mass. The rest fled, and we began running toward the *Comet*, praying that we might reach the ship before they could get organized again. How we floundered through the sand in wild and desperate haste.

Before we had covered half the distance, the pursuit began. There was no attempt to drag us down directly, but the two wings raced past to cut us off in front. At the base of the little cliff where the *Comet* lay, the circle closed.

"Jump," I called, and threw myself up over them toward the stone. Garth would have fallen back, but I caught his hand and pulled him to safety. We had won.

But had we? Joined by reinforcements from somewhere, the creatures were packed all around the base of the cliff and had begun to climb its walls, to cut us off from the ship. We rushed separately toward the two sides, and they backed away. But those in front were now established on the top. We stepped backward, and the whole line came on. But now we turned and ran for the *Comet*.

We were just able to turn again and clear them away with our swords. In a moment others would be climbing up from behind over the ship. And the door to safety was on a level with our heads.

There was just one chance. Stamping threateningly, we cleared the things out for ten feet in front of us. But once we turned our backs for a running start they were at us again.

"Boost you up, Dunal," said Garth pantingly.

"No, you first."

But in the midst of my words, he almost threw me into the doorway. I turned to pull him up after me. They were around his legs, and one had jumped down upon his helmet. And he must have known it would happen.

"Go back to her," he cried, and slammed shut the door.

There was no time to help him, to interfere with the way of expiation he had chosen. I tried to look away, but a sort of fascination kept me watching him through the glass. He had been dragged to his knees. Then he was up again, whirling to keep them away on all sides in a mad, gallant fight. But the creatures knew it was the kill. Now they were around his knees, now up to his waist in their overpowering mass. It was only a matter of minutes.

Garth took a staggering step backward, dragging them all with him. He was facing me, and swung up his sword in the old Lunar salute. "Good luck, Dunal." The words, coming clearly over the radio, had a note of exaltation.

Then flashing his blade over his head, he hurled it into the midst of the accursed things. With a tremendous effort, Garth tore the protecting helmet from his head, and plunged backward over the cliff....

There was nothing to do but get in out of the lock and start for home, and little on the trip is worthy of recounting. Without unsurpassable difficulty, I was able to operate the machinery and steer, first for Betelguese, then for the sun. Counting on the warning bells to arouse me, I managed to get in snatches of sleep at odd intervals. At times the strain of the long watches was almost maddening.

By the time the midpoint had been passed, I was living in a sort of waking dream; or rather, a state of somnambulism. I ate; my hands moved the controls. And yet all the while my mind was wandering elsewhere—out to Garth's body under the blazing light of Rigel, back to the moon and Kelvar, or else in an unreal, shadowy world of dreams and vague memories.

With perfect mechanical accuracy I entered the solar system and adjusted the projectors for the sun's attraction. Running slower and slower, I watched Venus glide by. And then, gradually, everything faded, and I was walking along the great Nardos bridge with Kelvar. The ocean was so still that we could see mirrored in it the reflection of each white column, and our own faces peering down, and beyond that the stars.

"I shall bring you a handful for your hair," I told her, and leaned over farther, farther, reaching out.... Then I was falling, with Kelvar's face growing fainter, and in my ears a horrible ringing like the world coming to an end.

Just before I could strike the water, I wakened to find the alarm bell jangling and the object-indicator light flashing away. Through the telescope, the moon was large in the sky.

It was an hour, perhaps two, before I approached the sunlit surface and hovered over the shore by Nardos. Try as I would, my sleep-drugged body could not handle the controls delicately enough to get the *Comet* quite in step with the moon's rotation. Always a little too fast or too slow. I slid down until I was only ten or fifteen feet off the ground that seemed to be moving out from under me. In another minute I should be above the water. I let everything go, and the *Comet* fell. There was a thud, a sound of scraping over the sand, a list to one side. I thought for an instant that the vessel was going to turn over, but with the weight of the reserve mercury in the fuel tanks it managed to right itself on a slope of ten or fifteen degrees.

From the angle, I could barely see out the windows, and everything looked strange. The water under the bridge seemed too low. The half-full Earth had greenish-black spots on it. And the sky?

So dead with sleep that I could scarcely move, I managed to crane my neck around to see better. There was no sky, only a faint gray haze through which the stars shone. And yet the sun must be shining. I stretched still further. There the sun burned, and around it was an unmistakable corona. It was like airless space.

Was I dreaming again?

With a jerk, I got to my feet and climbed up the sloping floor to the atmosphere tester. My fingers slipped off the stop-cock, then turned it. And the air-pressure needle scarcely moved. It was true. Somehow, as the scientists had always told us would be the case eventually, the air of the moon, with so little gravity to hold it back, had evaporated into space.

But in six months? It was unthinkable. Surely someone had survived the catastrophe. Some people must have been able to keep themselves alive in caves where the last of the atmosphere would linger. Kelvar *must* be still alive. I could find her and bring her to the *Comet*. We would go to some other world.

Frantically, I pulled on my space-suit and clambered through the air-lock. I ran, until the cumbersome suit slowed me down to a staggering walk through the sand beside the Oceanus Procellarum.

Leadensome and dull, the great sea lay undisturbed by the thin atmosphere still remaining. It had shrunk by evaporation far away from its banks, and where the water once had been there was a dark incrustation of impurities. On the land side, all was a great white plain of glittering alkali without a sign of vegetation. I went on toward Nardos the Beautiful.

Even from afar off, I could see that it was desolate. Visible now that the water had gone down, the pillars supporting it rose gaunt and skeletal. Towers had fallen in, and the gleaming white was dimmed. It was a city of the dead, under an Earth leprous-looking with black spots where the clouds apparently had parted.

I came nearer to Nardos and the bridge, nearer to the spot where I had last seen Kelvar. Below the old water level, the columns showed a greenish stain, and half-way out the whole structure had fallen in a great gap. I reached the land terminus of the span, still glorious and almost beautiful in its ruins. Whole blocks of stone had fallen to the sand, and the adamantine pillars were cracked and crumbling with the erosion of ages.

Then I knew.

In our argument as to the possible speed of the *Comet*, Garth and I had both been right. In our reference frame, the vessel had put on an incredible velocity, and covered the nine-hundred-odd light-years around Rigel in six months. But from the viewpoint of the moon, it had been unable to attain a velocity greater than that of light. As the accelerating energy pressed the vessel's speed closer and closer toward that limiting velocity, the mass of the ship and of its contents had increased toward infinity. And trying to move laboriously with such vast mass, our clocks and bodies had been slowed down until to our leaden minds a year of moon time became equivalent to several hours.

The *Comet* had attained an average velocity of perhaps 175,000 miles per second, and the voyage that seemed to me six months had taken a thousand years. A thousand years! The words went ringing through my brain. Kelvar had been dead for a thousand years. I was alone in a world uninhabited for centuries.

I threw myself down and battered my head in the sand.

More to achieve, somehow, my own peace of mind, than in any hope of its being discovered, I have written this narrative. There are two copies, this to be placed in a helio-beryllium box at the terminus of the bridge, the other within the comet[TN-3]. One at least should thus be able to escape the meteors which, unimpeded by the thin atmosphere, have begun to strike everywhere, tearing up great craters in the explosion that follows as a result of the impact.

My time is nearly up. Air is still plentiful on the *Comet*, but my provisions will soon run short. It is now slightly over a month since I collapsed on the sands into merciful sleep, and I possess food and water for perhaps another. But why go on in my terrible loneliness?

Sometimes I waken from a dream in which they are all so near—Kelvar, Garth, all my old companions—and for a moment I cannot realize how far away they are. Beyond years and years. And I, trampling back and forth over the dust of our old life, staring across the waste, waiting—for what?

No, I shall wait only until the dark. When the sun drops over the Grimaldi plateau, I shall put my manuscripts in their safe places, then tear off my helmet and join the other two.

An hour ago, the bottom edge of the sun touched the horizon.

Transcriber's notes:

[TN-1](#) Spaced em dash is found in the original.

[TN-2](#) Corrected from litle to little.

[TN-3](#) Not Capitalised or italicised in the original, but should probably read *Comet*

[TN-4](#) This etext was produced from "Astounding Stories" December 1931. Extensive research did not uncover any evidence that the U.S. copyright on this publication was renewed.

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