SPACE SCIENCE FICTION

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THE BARRIER

Mestrated by ORBAN

Man proved once that the speed of second was a barrier which no airplane could creek. It took new ideas, tough men, and a lot of time to beat it. Then men got out of the atmosphere where a worse barrier was waiting. They knew that this had to go fester than tight to reach the start. It's a lot tougher to beat the speed of light than to creek the senic barrier. It would take a hero to distinct on the start in the start in the start in the start.



I get a laugh out of the way they tell the story of how Joe Harner broke the Barrier, All the visicasts carry it on the anniversary of the Star Pup's return. There's a big. full-hour program about it, and schoolkids have to watch it for school credit, and all that day the comedians make cracks about it. and they fly flags at half-mast and have ceremonies yapping shout it Joe Harner broke the Barrier, they say, and he's a planetary hero-the first oneand Bill Todd makes a speech and says what a good guy Joe Harper was, and how everybody wishes he'd lived, and they hold Joe Harper up for all the kids to model themselves by. They say with proud and winstful grief that they can't build a memorial over his grave, but that overy Earth-colony in the skies is his memorial. They say a lot of things like that

I knew Joe Harper. I knew him better than anybody else who ever lived. I know more about him than anybody who makes speeches or writes the visicasts for the anniversary of the

Breaking of the Barrier, I knowl

The Barrier was space, of course It was the distance between Earth and the nearest star It was the difference between the distance to the Moon -we could make that then-and Alpha Centaurus. It was less than two light-seconds to the Moon. It was four and a half light-years to Alpha Centaurus.

I'm not going to spoil the story. When I kick off, this goes to the Joseph Harper Memorial Fund-which educates boys who can't awing it themselves. They can use it or not just as they please. If they give a damn about actual facts they'll publish it. though. This is the truth about this precious here of theirs. Joe Harper.

It was the Bessenden Comet that started it. If you're more than a kid you'll remember. It was a comet that they picked up on the Moon Observatory telescopes first. They'd already spotted two planets of Alpha Centaurus, then, They picked up Resendan's Comet a half-light vear out. It took plenty long to arrive By the time it was a naked-eye object they had its orbit figured, and they were shivering with joy. It came in and swung around the sun, and

they checked some more, and

then they went crazy with excitement

There were three good reasons One was that Ressenden's Comet didn't visit our sun only

It had a closed orbit, of course, and our Sun was at one end of it, but Alpha Centauri was at the other. It made a round trip between them every twenty-three zillion zillion years. That was one excuse for going nuts. Another was the spectrum

of its tail. There was some stuff in it that didn't fit into the periodic table. It had atoms with double nuclei. Like double suns. Two nuclei apinning around each other, and the planetary electrons running around outside. The physicists went out of their minds, figuring out what it would mean. They called the stuff beasendium after the guy who'd picked out the comet on a photographic plate in the first place. He never did anything else of any importance in all his life. The third reason for excitement was the news that Earth was due

to pass through the comet's track in just three months.

That meant there might be meteoric falls of the same stuff the comet was made of. Meteors so barging around in the orbite of comets. The Leonids and the August meteors do, anyhow, Maybe some scrap from this comet would fall.

The physicists started showing their figures to the big-money boys. By the time we were ready to pass through the comet's trail there was an offer of a thousand dollars a gram for any meteoric material from the comet. And you could write a book about that night with everybody watching for millions to full from the sky!

A half-ounce piece fell in the middle of Rio de Janeiro. A firehall exploded over Lake Eric, and three pieces fell on shore. There was a fall in Kamchatks-sixty nieces, total weight twenty-three pounds. Un near the Moon Observatory they got another piece. With all the earth watching here and on the moon besides, there were less than thirty pounds of meteoric material picked upand there was less than an ounce and a half of pure bessendium in it. That was where Joe Harper came in.

He'd been working on reckets. He was the one who worked out compound-explosion rocket-motors, and got forty thousand feet exhaust-velocity for the first time. The big-money boys were putting up for something big, and they wanted him to design the engines. They were going to ounce and a half of beasendium. Because besendium turned out to be an atomic catalyst. You

ergy out of anything from lead to mushroom soup if you had as much as an ounce and a quarter of bessendium. You couldn't use less. There was a critical mass for catalysis, like there's a critical mass for a bomb. They could make one ship. Just one. They could never make another ship unless they got some more bessendium. And they called in Joe sendium. And they called in Joe

You've heard the stuff about

to build the drive

could get controlled atomic en-

him. Poor boy, self-educated, brilliant mind, genius for seeing into the heart of things high ideals, chivalrous-everything a planetary here ought to be Sure! That's what the visicosts say. Let's skip that horwash. The compound-explosion rocketmotor was only a twist on the principle of the long-barreled cannon. He got it from the Big Bertha that bombarded Paris from seventy miles, back in 1917-1918, fifty years before he was born. Of course he had to work out a tricky electronic-circuit cooling-system to keep his engine from melting. It turned waste heat to electricity, and they use that to generate current on Earth, right now.

They were going to use the

Star Pup to go to Mars. A quick

petrological exploration - for

traces of bessendium-and they

would push off for Saturn's

rings. If that failed they'd start checking over the asteroids, one by one, for bessendium. Earth had the stuff to make one atomic-

drive ship. Just one. No more.

They had to use it to try to find more stuff for more ships. And Joe Harper designed the Star

He did a good job on those engines. You can give him that. They were good engines. But he put something over on the rest of the designing erew. Those engines could have pulled the Stangues could have pulled the Stangues of the designing erew. They could accelerate the ship at forty-seven gravities. If you farmer what forty-seven gravities are given to the ship at forty-seven gravities.

ngure what forty-seven gravities would do to anybody inside the ship, you'll see how often it would be used! The funny thing was that no-

body realized it while the ship was building. Not even Bill Todd -but he was an astronomer. Nobody got it but Lila Hunt. who was the biological designer: she worked on the sir-freshener and exone apparatus and the interior environment to keep the crew from cracking up from space-nerves. A nice-looking girl. Lila. A little bit on the tall side. but she had good eyes and plenty of brain-cells working and she was a human being besides. Even she didn't really tumble until they'd finished putting on the Star Pup's outer plating and

were working on the outer helix.

Joe Harper was puttering around on top of the hull, watching the workmen mold-welding the silver conductor-bars from

the cooling circuit. The Star Pup was funny-looking. Her rockets were outside her skin. There was a helix of heavy silver bar around the whole hull. It was supposed to be communicationstuff. Lila watched Joe raising hell with workmen fixing up a weld. They had blueprints and a wiring-dingram, and they grazued with him. He look the

diagram and changed it and signed the change. He snapped. "That puts you in the clear! Go shead and fix it my way!" Then Lila said:

"Joe " He climbed down from the hull and went to her. He liked her a lot. Joe did. She was a couple of inches taller than he was, but he thought about her a lot when he should have been doing something more sensible He never made any passes at her. though. He was conceited, but not that conceited! He knew she wouldn't look at him. So he soled curt and hard-boiled to her, but he always thought over everything she'd said afterword just liking to remember the way she looked and how her voice sounded.

This time, when he climbed down off the Star Pup, she smiled at him and said, "Joe, those engines are too big. I've been reading up. You had an article in the last Electronics

Engineering. I studied it."
"Why?" asked Joe. Pretty stupld. A girl doesn't read a technical article outside her field

unless it's by a man she wants to understand. "Oh, I like to read what my

friends publish," said Lila. "But those engines are big! You'd never dare turn them on full, according to the figures in your article. You're putting something over. Come have lunch with me and tell me about it, will you?"

He pretended to hesitate, but he went to the commissary of the moonship yard where all the reckets that had ever gone to the moon had been built—but to the moon had been built—but were built to go farther. A moon-recket could get to Mars, but it would have to coast eight months, and carry eight months, and carry eight months of food for the crew that went along—and then it couldn't get back. So nobactly d gene. No use

and sat down.
"So I'm putting something

over!" said Joe. "What?"

"I wouldn't know," admitted Lila. She smiled at him very

inicely. "But if you turned on your engines full-power you'd kill everybody in the ship unless: you turned on the coolers full power. Then you wouldn't get much drive, but you'd draw off a couple of hundred thousand kilowatta of power. Maybe

more."

"So what?" said Joe, challeng-

ing.
"So what are you going to do
with two hundred thousand kiles

watts of power, out in space?" asked Lila. "It's three hundred thousand," said Joe. He ordered a meal. for

her and himself, and said, "I want to try something." "To try melting the ship?" asked Lila. She said softly. "Tell me. Joe. The engines are in. It's

too late to tear them out. I won't tell. What do you want to try?"
"You saw the helix outside the hull," said Joe. "It's half-inci silver bars, to send radio signals and pick them up, they say. Quite a loop. What'd happen if

you sent three hundred thousand kilowatts through that helix four hundred thousand horsepower?"
"Wouldn't they blow?" asked

Not if they were cold

enough," Joe told her, "Not at four degrees Kelvin. That's the temperature out there. Silver's a superconductor there—zero resistance. They wouldn't blow. They'd carry the current. What would happen?"

Lila thought it over. She shook her head. It was queer, this stuff. He talked technicalities and noticed the way she smiled and thought about that. She talked technicalities and smiled at him in a strictly untechnical way.

"All I can see is that there'd be the atrongest magnetic field anybody even thought about," she said. "What good would that be to a space-ship enclosed in it?"

"Take a thing that makes heat," said Joe, noticing Hoat, and the heat heat her half hand funny little golden lights in it. "A resistance-wire, say. Put in enough power and it stops making heat. It gives light. Put in more power and if it didn't blow it'd stop making light. It'd give off ultra-violet and X-ray. Put in still most and X-ray. Put in still more and if anything could take it. Utd give yourses. Right?

it'd give cosmics. Right?"
She nodded.
"Take a coil that'll make a
magnetic field," said Joe. "Put

in enough power, so it's not magnetism any more. What'll it be?" "What would it be?" she asked, surprised into paying attention to what he was saving.

instead of just to him.
"I want to find out," he told her, grinning. Then he said:

. "You're a good-looking girl, t Lila."

"Ah!" she said, making it sound like half a joke. "Come k up to my house tonight and tell ". me that again!"

o- "You'd pump me," he said and wisely. "About what I think that and field would be. I don't fall for

that."
"I might want you to tell me
i I'm good-looking," she pro-

tested.
"Not with Bill Todd hanging around."

She said very firmly indeed, her eyes anxious. "He hasn't any mortgage on me! I'd like you to tome, Joe. I—you never have talked to me about anything but

t "And I won't," said Joe. "Not until I get rich. Remember my t cooling-circuit for my rockets?"

She nodded. That was a bad deal that Joe Harper got. It, made him the fool he turned out it, be. But of course, if he hadn't been something of a half-wit to start with, it wouldn't.

"I never did appeal to girls," said Joe deliberately. "I was pretty well resigned to it. Then I met a girl who seemed to fall for me, hard. She liked to talk about my work, even. I was figuring out that cooling-circuit, then, and I bragged about it to

her. I drew the circuit for her to admire. She admired it a lot. She admired it so much that she carefully took my sketches and a tape-recording of what I'd said about it to the corporation that notented it and is making very nice dividends from it. They're building all the new power-plants on earth with my circuit. But I didn't get anything

Lila knew it had been taken from him, of course. She'd never known how It was one of those things that couldn't be proved. "Do you think I'd do that?"

she asked burt "I wouldn't take the chance."

though."

he told her. "That's all." "That's hardly a nice thing to say to me," she protested.

"I know." he agreed. "It isn't nice But I said it " She bit her line.

"If that's why you act as you do. Joe." said Lila quietly. "-because some girl did you a dirty trick-I'll promise not to say one word about work or the Star Pup. I would like you to like me. Joe. I've tried to make vou."

She looked like she mount it and he was tempted. This was in the commissury restaurant She was the prettiest girl in the room. He liked her better than he'd ever liked anybody else But he'd been hit hard He'd made a bitter resolve never to be fooled again by a girl. He would have given Lila his left arm and leg, if it would have done her any good. But he couldn't trust anybody. He couldn't tell the difference between Lila and the kind of girl who could be hired to make a fool of him.

out of it. I guess the girl did. "I'll tell you," he said. He grinned, but he meant it. "If my trick is what I think it is I'll get a lot richer than that cooling-circuit ever would have made me. I've got you in my mind, When I'm rich, I'll come and eak you to marry me. I mean it," he added. "That's what I want "

> that, Joe. You're just crazy enough to mean it. But I'm crazy too, in my own way, I've been telling myself I was in love with you. I've been making passes at you in a ladylike way. Now that you've said this-I'd marry you temorrow if you asked me. Right now. But if you dodged me until you got richnot trusting me-and then came . . . I wouldn't marry you

Then Lila went pale. She said

very quietly, "I think you mean

if you were the last man in the world!" Then she got up and went out of the commissary, fast. Joe looked after her. He felt rotten He had an idea that she hoped he'd come over to her house that night. But he was not the brit-

T IIa

liant, impulsive, aplendidly normal character the visicasts say he was. He didn't go. Next day he saw her at the moonahip yard. He nodded how-do. She turned away. He was sorry, but he was that kind of a fool. He didn't

Then he had that run-in with Bill Todd. The Star Pay was pretty nearly finished, and Bill control of the star Pay share the sta

All of a sudden he came to Joe Harper and said angrity, "Look here, Joe! What's this about Lila?"

Joe was working, then, He was

making an instrument to go on the Star Pup, and it was tricky adjusting it, because all he had to go on was theory. He was irritable because he couldn't have any of the stuff it was supposed to measure to calibrate it by.

"What about Lila?" he asked.
"She told me she's not sure
she'll sign on the Star Pup for

the cruise. Evon the try-out cruise II anked her what was the matter and she said you wouldn't want her along. If you think you can decide who makes up the crow of the Star Pup. . I raised the money for that ship! I'm to be her skipper! If I want Lila in the crew, she's in the crew!"

"All right," said Joe. "She's in the crew, then."

He was having trouble with his work. He was fretting. And Bill Todd was a nulsance. Bill said more angrily still.

"You're a good engine man, Joe, but don't get any ideasi You're not the boss of this business! If you've got something on your mind, you can say it right now!" Joe turned from his work-

bench and snapped. The scheme is cray! It's cray to hunt for bessendium on Mars. Erosion has pulled it down flat and covered over all its rocks anyhow. It's cray to hunt for bessendium in Saturn's rings. It makes a mice dramatic picture, but the specific gravity's low. There won't be any heavy elements like

bessendium. If there's any in this solar system it'll be on Mercury, but I don't think there is. The comet came from Centaurus. I don't believe there's an atom of beasendium closer than that It would take some fresk conditions to make a double-nucleus atom! We'd hove found it on Earth if there were any around. Earth's got the best assortment of elements any planet has. It could be on Mercury—but not anywhere else. I think it'll have to be found in the Centaurus system."

Bill Todd said. "Ambitious, you are! It'd take six years, sounting acceleration and deceleration, to get to Centaurus at point eight light-speed. That's the best the Star Pup could do with all the time it needed for acceleration. And grerew would atrave on the way. Six years each way? You're the one who's erasy!"

"Want to bet?" asked Joe.
"I do not want to bet," said
Bill Todd with dignity. "I want
you to attend to your part of

this business and leave the rest
—Including the selection of the
crew—to me!"
"Else I'm likely to be left out.

eh?" asked Joe.
"Figure it yourself!" said Bill.

Joe went back to his instrument. Bill Todd was a pretty good astronomer. He ould raise money and give a charming lecture, and he was good at changing the photographic plates in a telescope. He stood there, watching Joe belligerently.

"And I want Lila on the Star Pup!" he said firmly. "That's

He stalked away, leaving Joe to figure it out. And Joe figured t He could see through Bill Todd te easily enough. Bill was the sort to gloat over being skipper of the first ship to land on Mars, and the first to touch the rings of Saturn—nobody'd want to

land on Saturn—and he was the fair-haired boy who would revel in being the hero of the first romance out in space. He'd love the visiacreen appearances he'd be asked to make as a great ccientist and a great lover, holding the hand of the girl he'd won with Saturn filling half the universe as he told her of his love. .. Sure! Even Joe could

figure that one out.

He saw Lila next day. He went
up to her and said, "You told
Bill you want me left behind?
Why?"

"I didn't say that," said Lila quietly. "I said I might not go along myself. I don't think it's a good idea to have a crew of a ship not able to trust each

other."
Joe said coldly, "All right.
Suppose I put three hundred
thousand kilowatts through that
helix. I'll be as much more than
a magnetism as light or X-rays is
more than heat. I'll be a stress
in space, of course. It'll be a new

kind of stress in space. I think
it'll make a field in which the
speed of light will go up out of

sight, and a field that can travel at that speed. I think it'll give the Star Pup a faster than-light drive. Is that what you want to know? You wanted me to trust you. I've told you. Satisfied?"

She shook her head.
"That's not what I want you

to say," she said in a low tone.
"I've got to be part of the crew," said Joe practically, "to find out if that works. I might be wrong. It might blow us to

hellandgone. I'd rather you stayed behind."
"Why?" asked Lila bitterly.
"Nobody cares if I go on a dan-

gerous expedition!"
"I do," said Joe. He meant it.
"If you'll ask me," said Lila,

"I'll go with you and be with you when you try it. I'll swen help you do it without the others knowing—because they wouldn't let you. That's not right, but I'll do it. You haven't the right to risk their lives without their consent, but I'll help you do that --if you say what I want you to

say."
Joe shrugged.

"They'd never agree," he told her. "Besides, there's the bessendium. It's all there is. Bill wouldn't risk either his neck or the bessendium except for glory. He'd never risk both."

"I will," said Lila. "But you've got to ask me to. Joe, haven't you ever wanted anybody

to be part of you? To share everything with you? Even dant ger?"

"No," said Joe. "Not danger. st If I get a lot of money I'll want to share that with you."

"You're crazy!" cried Lila fiercely. "I won't let you do it! I'll tell Bill Todd what you intend! I'll aton you!"

She ran away. He didn't run after her. He just stared where

she'd vanished. Plain stupid.

He took off in the Star Pup,
alone, two days before the ship

was officially finished. It was practically done, of course. The air-plant was in, and the heaters, and the fuel was loaded—but anything would do for fuel. The beasendium was in its place, built in Joe Harper went to the ship and got a workman to help him get a couple of heavy cases

inside. Said it was instruments for teating the rockets. Then he got all the workmen away. He was going to test the rockets.

He tried them. One by one, at minimum power, he set every

minimum power, as set every one at work. But even so, they made a noise that was something to crack a man's car-drums. The noise was terrific. It went beyond the moonship yard, tilled the offices. It was a growling, snarling thunder. Lila heard it. She turned her head, going

it. She turned her head, going white. Bill Todd was talking to her at the time

"Who's turned on the rockets?" the demanded white on chalk

"Joe." said Bill, easily, "He told me he was going to make a check Just routine You didn't tell him he'd have to stay behind. "did you?"

Lila didn't answer. She was out the door. She ran: She ran down the steps and into the vard, and she ran crazily toward the Star Pup, sobbing as she ran and blubbering, "Joe! Joe!

Wait for me!" Somebody tried to stop her when she was a counte of hundred yards of the ship. She dodged them and ran down a lane of unscorphed ground where the rocket-flames didn't touch She saw the ports were closed. The entrance-port closed as she got to the ship's side. It seemed like Joe had closed it in her face. but actually he'd done it from the control-room. She pounded on it with her flats, crying, "Joe! Joe! Let me in!" The booming of ten thousand thunders was in her ears

Then the ship up-ended and went away from there with as many of the forty-seven gravities that its engines could give as Joe dared put into them. There was a flash, and it was darting up. It went up into the sky. It was out of sight in seconds. And there wasn't anything

where it had been. Not anything. So Joe went to Centaurus They got word to the Moon Observatory, and they got a tele-

scope trained on the Star Pun and saw it head out. Joe put it through all its paces on atomicrocket drive. Very conscientious. he was. Then he lined up for

Alpha Centaurus-and suddenly the ship wasn't there. He'd walted, watching the outside temperature, until the silver helix was down to four degrees Kelvin and it didn't have any resistance at all. Then he turned on the engines and the cooler full power. Three hundred thousand kilowatta went into the helix. There was hardly any power left as rocket-thrust, but there was enough. The magnetic field became something else It became an area of stress in which the speed of light went away up-and therefore an area in which the Star Pun could travel

normal space. The stress went shead of the Star Pun She went out of sight. There ween't even a streak of ions left behind that anybody could see. There was a streak, but the ions were too far apart. Miles and miles apart. The Star Pup had cracked the

hundreds of times faster than in

Barrier.

He was gone something over three weeks, living on the food he'd gotten into the ship in those two cases he'd said were instruments. Then, one day, the Star Pup winked into being again. She came on toward Earth. The radio receivers at the Moon Observatory picked up this mes-

sage. "Star Pun reporting back from Alpha Centaurus planet two," was the message. "Have nearly ton bessendium are for cargo Contact Lile Hunt care of moonship ward Star Pup project Message for her quote I know what I should have said, I say it.

I love you. We'll get married please. Unquote." The Moon Observatory relayed the message to Earth, while the Star Pup came on. They went or injured in the crush. They crazy down there, of course, But never found Joe's body. They Bill Todd phrased the message

back to Joe. He did a beautiful job of it. It told Joe that Lila had been

in the blast-area when he took off. It had been quick. That was the blessed part of it. It didn't last the thousandth of a second. Joe went out of his mind, out there in the Star Pup, heading for Earth. There was a time when he started to head for the Sun and dive in it. But that

Earth. But Joe got one break. The only break he ever got out of the whole business. He set the Star Pun down The minute she

was on the ground the planes hovering around broke all barriers and came awooning over to see the Star Pup close. Joe got out of the ship and began to run. He wanted to hide. He didn't want to be a hero. And he got his break. A four-passenger lob collided

with a light plane and they started to fall; they gathered up two other planes on the way down. They landed at the very edge of the crowd that was rushing out on the field to mob Joe for being a hero. They blew up when they hit. There were eighty-some people killed. right away, and some hundreds burnt

never found Inc When they picked me out of the mess and hauled me to the hospital with all the other injured. I was burnt pretty badly. The first thing they asked me

was, "What's your name?" I told them, "John Smith," I didn't want to be a hero. I wanted to hide. I wanted not to remember anything. I was pretty bitter because I didn't die. It was three months before they turned wasn't fair. So he landed on me out of the hospital, and then nobody would have recognized

me anyhow. So that's that, Joe Harner wasn't any hero-

He was a domn fool. I should know. I used to be him.