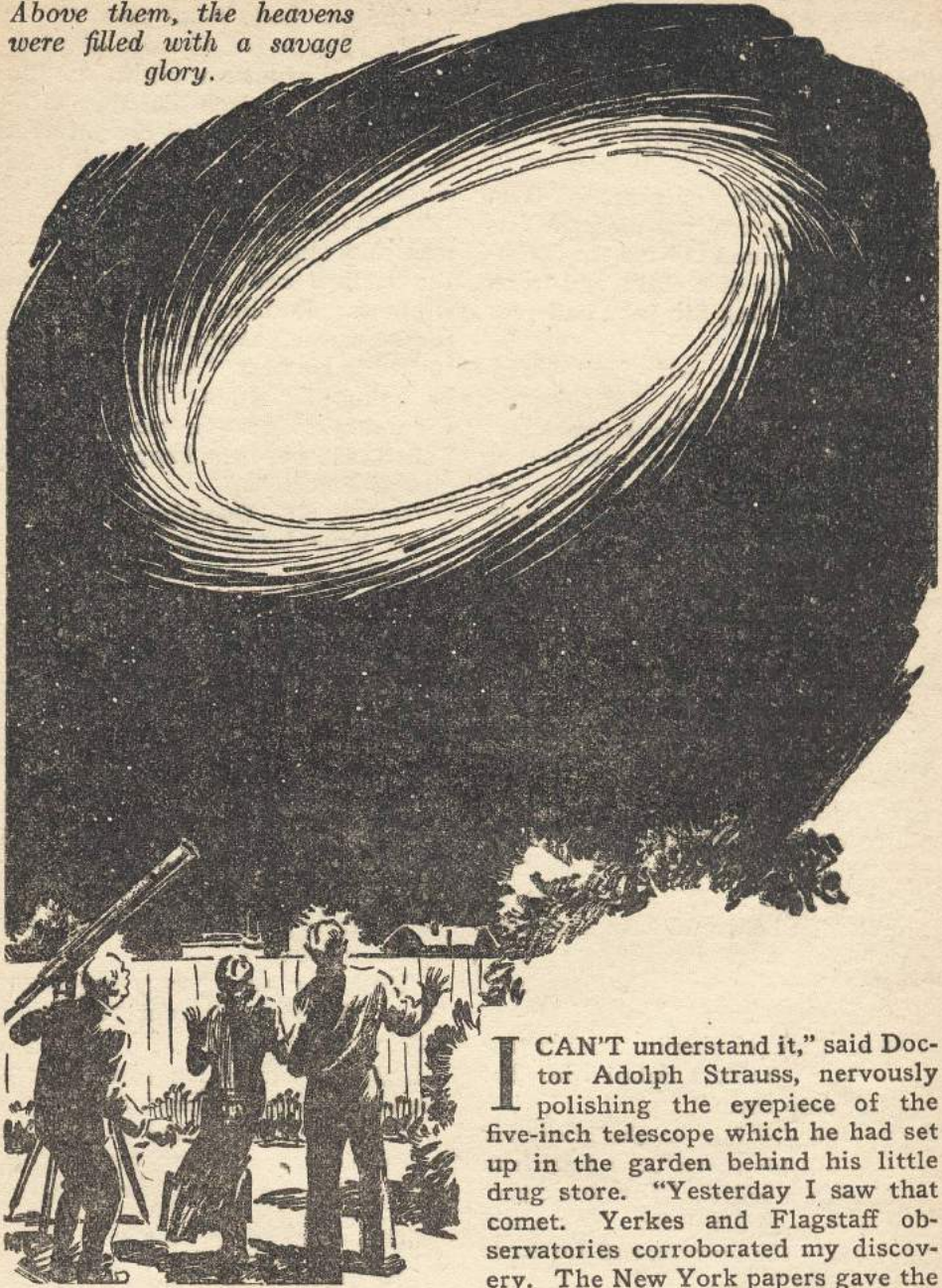


*Above them, the heavens
were filled with a savage
glory.*



A Story of the Second Dimension by

WALLACE WEST

I CAN'T understand it," said Doctor Adolph Strauss, nervously polishing the eyepiece of the five-inch telescope which he had set up in the garden behind his little drug store. "Yesterday I saw that comet. Yerkes and Flagstaff observatories corroborated my discovery. The New York papers gave the story half a column with my picture. To-night the comet isn't in sight!"

"Poor dad," said his son Frank, who was lying on his back in the grass, staring up at the darkening

PLANE PEOPLE

*The razor-edged planet hurled itself
at the Earth like a buzz saw.*

sky. "I can see to-morrow's headlines: 'Amateur astronomer's comet a hoax.' 'Doctor Strauss's discovery discredited.' Ouch!"

"It's no laughing matter!" The rotund physician whirled upon his progeny. "If I've been mistaken, the president of the Amateur Astronomical Association will——"

"Yeh, I know." Frank rose lazily to his six feet two and yawned. "The A. A. A. will brand you for a publicity-seeking bungler. Well, guess it's time to relieve Marie at the soda fountain. I sure will be glad when this lousy vacation is over and I can start football practice."

Behind the counter was Marie, a pretty girl despite her too-tight dress and ridiculous spike-heeled shoes. Soft golden hair and clear blue eyes set off a pert, tip-tilted nose.

"Lo, Frank." She relinquished her post behind the faucets. "I'll be back for the eight-o'clock rush. Don't work too hard."

Frank went into the back room to gossip with Bert Wheeler, the prescription clerk, a lean, pale youth who nourished ambitions of becoming a physician and marrying Marie. The two were soon deep in a discussion of end runs and interference, when the front door slammed violently.

"Frank! Bert!" Marie called. "There's something enormous in the sky! Come out, quick!"

At the same moment Doctor Strauss, flushed and shaken, thrust his head in the back door.

"I was right, after all! The

comet! It's right on us! Coming at terrific speed! And it's flat—like a pancake! That's why I couldn't see it." The head vanished.

"The governor's gone nutty this time sure," said Frank. "He's going to have a comet named after him if he has to manufacture the darned thing."

Outside, however, Frank's handsome face went white at the amazing spectacle. From horizon to zenith, the eastern sky was split by a brilliant white line. As he stared, this vanished, to reappear as an elongated oval. Then it thinned to a hair line once more.

"What is it, dad?" he asked.

"Don't know. It's like a pie plate, big as the Earth. What we see is its wabbling edge. It's coming straight at us. The collision will split the Earth like an apple." He turned back to the telescope.

"Oh, God," Frank heard the old man praying, "in this, my last moment——"

The words were drowned by a hiss similar to that heard when a whip is cracked. This grew to a million whips, then transcended sound altogether. The line of light flashed downward like the edge of a sword!

FRANK RECOVERED consciousness and sat up holding his aching head. His whole body shook, as though he held the terminals of an electric vibrator. For a moment he thought he was still in the garden. There was the telescope, sprawling by its fallen tripod. Beside it, Doctor Strauss was lying,

his open mouth and unconscious, staring eyes revealed in the moonlight. A little distance away, Marie had crumpled up, her silk dress in tatters. Near her Bert sprawled like a fallen scarecrow.

But there was something wrong! The fence surrounding the garden was in ruins, while of the houses which should have bordered the street outside there was not a trace. Turning, he looked toward the drug store, to find it converted into a heap of tangled lumber, as though it had been struck by a giant hammer.

And there was something wrong with the moonlight which revealed all this. It was of a peculiar greenish blue, which caused Frank to lift his eyes. With a bound that would have done him credit on the grid-iron, he then came to his feet with a shout of pure panic. The green light was coming, not from any Moon he knew, but from a great globe which spun across the heavens like an airplane.

"Dad! Bert! Marie!" he yelled, his heart thumping with terror. "Wake up! There's something wrong with the Moon!"

Then the awful thought occurred to him that perhaps the others were dead. An icy hand seemed to close around his heart. It relaxed, however, when the doctor stirred, sat up, rubbed his eyes, stared at the strange sky, then scrambled toward his beloved telescope.

For a long moment there was dead silence while Frank rummaged through his pockets for cigarettes and found none. Finally his father turned to him with a face suddenly drawn and wan.

"That's not the Moon, Frank. That's the Earth!"

"What's it mean, dad?"

Frank had unearthed a single crumpled fag from an inside pocket

and was lighting it with trembling fingers.

"It means that we've been carried off on Strauss's comet." The little man could not resist giving their strange habitation his own name. "It probably impinged only slightly on the Earth, scooping us off as you would take a cherry off the top of a sundae with a spoon."

Frank started to walk across to the two other forms, only to discover that his progress was slow and clumsy, as though he were climbing a steep hill. Yet the ground was perfectly flat—flatter than he had imagined ground could be—and covered so far as the eye could reach with a dense, lichenous vegetation into which his feet sank as into a Persian rug.

Bert's thin frame and sallow face looked even more ineffectual than usual under the green Earthlight. Frank leaned over and shook him half contemptuously. Poor devil, what a shock he'd get! As the pharmacist moaned and showed signs of recovering, Frank turned his attention to Marie.

Without the mask of pertness behind which she always had hidden, the girl was much more charming than he had ever seen her. Her red lips were parted, showing fine white teeth. One rounded shoulder gleamed provocatively through her torn dress. Even in the relaxation of unconsciousness her figure showed long, graceful lines.

"Oh, how funny and green you look!" Marie had opened her eyes and was struggling to sit up, realizing her half-naked condition. "What hit us? I feel as if I'd been through a washing machine. Got a cigarette? I need one badly."

"Only this one. Have a whiff. It probably will be your last." He regretfully relinquished the butt.

"We're off on a comet, à la Jules Verne. The governor wasn't so crazy, after all. Can you stand up?"

"Oh, yes." She seemed unable to grasp the astounding news as yet. "Hello, Bert. You look as though you'd been dragged by a horse."

But Bert was far beyond caring how he looked. He alone seemed aware of the hopelessness of their position. His lips were blue. His eyes rolled wildly.

"What have I done?" he moaned. "What have I done? I'm going to die, and I don't want to." He began to laugh hysterically until Frank shook him back into sanity.

"Who says we're going to die? Buck up, old man. Let's go talk to the governor. Come on, Marie."

Frank held out his hand and thrilled to the firm, cool touch of hers as he assisted her to rise.

Their return to the doctor was another surprise. Although it looked level, the ground now seemed to slant sharply. They were forced to fight against the tendency to break into a run and only stopped beside the doctor by digging their heels into the turf.

"Say, what is this?" demanded Frank, sitting down because it seemed easier than standing against that invisible pull.

"I don't know, boy." Then, a speculative light in his nearsighted blue eyes, his father added: "When I was at the fairs they had a big wheel which spun round and round. You got on the wheel, and if you stayed near the center you could hold on. But if you slipped to the edge, off you went. Well, this comet is very thin and perfectly flat, like a phonograph record. It's whirling at a terrific rate, as you can see by the spiral motion of the Earth up there. Centrifugal force accounts for its being easy to walk

in one direction and hard in another."

"Which is all perfectly lovely," countered Marie, "but what I want to know is, how and when do we eat?"

"All you think of is eating," Bert interrupted. "Now you've made me hungry."

"This grass has berries on it," said Frank. He picked a handful of a waxen fruit. "Hm-m-m! Don't taste bad."

"They may poison us," Marie suggested.

"Now, see here." Bert looked as if he were going to be ill. "That's no way to talk. Kidding's all right at the store—but this is serious!"

"Scaredy cat," Marie sniffed as she watched Frank still eating, and followed his example.

The pharomic glared at her and muttered under his breath. His dormant jealousy was awakening rapidly.

"What do we do next?" asked Frank after a long silence.

"I don't know," confessed the doctor, his head in his hands. "It's outside my experience. And it's going to rain soon, too," he added, staring at a low bank of mist or cloud which was sweeping over the ground toward them from what they considered the axis or "up" side of the country. "We ought to find shelter, I suppose."

"Let's start walking 'up' then. Better bring the telescope along. You can carry the tripod and Bert can bring the tube."

"Hey, how about you carrying something?" Bert protested. "And who gave you the right to issue orders, anyway?"

"Well, somebody had to take charge."

"How about consulting me—us—first? We ought to draw lots.

That's the way they do in desert-island stories."

"Sometimes they fight it out for the leadership. Want to do that?" Frank's voice was cold.

"Aw, say, now, I'm no fighter."

"All right, then." Frank slipped one hand under Marie's arm and lifted her to her feet. The pharomic choked with rage, but made no further protest.

"But wouldn't it be much easier to walk 'down'?" objected the girl after a few minute's laborious trudging against the centrifugal pull and the wind.

"Sure," replied Frank. "But, if dad's theory is correct, the farther 'down' we go, the easier the going will get until we'll be running and can't stop and are swept right off the edge of the planet like a spark from an emery wheel. No. We'd better go 'up.' The pull should become less as we advance."

The clouds were pouring toward them in a tumbled mass, and after half an hour's travel the rain commenced. But it was like no rain they knew. Instead, it resembled a barrage of machine-gun bullets flying almost parallel to the ground, and was accompanied by a gale which stopped their progress like an outthrust hand.

Marie whimpered but struggled valiantly on, her tiny spike heels sinking into the tundra, her permanent wave only a memory. Frank looked at her with a new respect and growing admiration and tried to aid her as best he could.

Bert was the first to quit the unequal struggle. Dropping the telescope, he lay on his face behind that slight shelter and cursed savagely.

Since no rock or hill offered shelter on the mist-enshrouded plain, Frank also stopped, directed his father to sit with his back to the rain,

slumped down beside him, and pushed Marie into the shelter formed by their bodies. On Earth the girl would have been unprotected from the rain, but here, because of its almost horizontal path, she was fairly dry. The back of her protectors ached with the smart of the lashing drops, while little rivulets flowed from behind them and trickled down on the drug clerk.

"How long do you think we can hold out?" Frank whispered to his father as soon as he saw that Marie, completely exhausted, had fallen asleep.

"Two or three days, unless we can find shelter or light a fire."

"Say, dad"—the youth found his parent's wrinkled hand and squeezed it gently—"I've treated you pretty badly at times, and I'm sorry. You're a good scout."

"Let's forget it, then." The old man's voice quavered. "I was too old when you were born to understand you, I'm afraid."

HOURS LATER, as the green Earth was plunging over the edge of the planet, the Sun rose over the other rim and started a rapid spiral toward the zenith. Miraculously the rain stopped, the crawling clouds evaporated, and the wind died away.

Dripping and exhausted, the four started forlornly about them over the unbroken plain. Marie had awakened with a violent chill, while the doctor had developed a hacking cough.

"We've got to have a fire," announced Frank. "Who's got a match? Mine are all gone."

The doctor produced a few sticks from which the heads had melted.

Bert rummaged through his pockets, but fared no better.

Frank looked inquiringly at Marie.

"Where do you think I'd carry a match in this rig?" she laughed, hugging her knees and trying to still her chattering teeth. "I'm as naked as the girls on the lipstick calendars," she added, to show that she had not lost courage.

"How about the telescope lens as a sunglass, then? This moss is drying out rapidly."

Chagrined that he had not thought of this before, the doctor unscrewed the glass. Only a few minutes were required to create a tiny blaze, around which they dried themselves and regained some of their spirits.

"All right; let's go." Frank realized that to sit still meant death in this barren land. Marie clung to his arm, laughed at all his jokes, and did not try to hide the look of adoration in her eyes.

Although only two hours had passed, the Sun had reached the zenith, and the heat had grown oppressive when they came across a path in the tundra which made the going somewhat easier. This track was narrow, but it ran in the direction they were taking and proved a godsend for Marie, whose pretty shoes had become mere pulpy masses.

"At least, there is some sort of animal life in this strange world," the doctor said. "Maybe we won't starve, after all."

Hardly had he spoken when Frank motioned him to be quiet.

"Food in sight. Some kind of creature up ahead."

Deploying to right and left, they crept forward. Soon a bright-green object could be plainly seen coming down the path. Frank gripped the tripod, their only weapon, and crouched, hoping the peculiar thing would not see him. The more they advanced, the more extraordinary their prey appeared. Seen close at

hand, it resembled a gigantic sole or flounder, being flat as a pancake and evidently propelling itself by extending and retracting its under side. In the head portion were two narrow eyes and a wide mouth which worked continuously. The thing plainly was endeavoring to escape from some pursuit, and took no notice of its new peril. It was on the point of scrambling past the humans when Frank swung his tripod. It took two blows to dispatch the creature, and between the first and second it set up a shocking squeal which set their teeth on edge. It was almost human.

"Get out the glass, dad. We'll have dinner right now." Frank held up the "catch," which looked exactly like a dusty fish.

Their preparations were interrupted, however, by a peculiar, high-pitched humming which increased rapidly from the direction which they had agreed to call "up the hill."

"More of them," reported Frank, shading his eyes from the Sun. "Might as well lay up a supply for the winter."

But the creatures which now came scooting down the path were of an arrestingly different nature from the fish they had just killed. Bert took one look at them and beat a hasty retreat. Even Frank paled as he motioned Marie and his father to stand behind him and poised the tripod for action.

The newcomers were about six feet long and two broad, and were equipped with innumerable arms or legs which extended from their spiny sides like those of centipedes. But the most amazing thing about the creatures was that, for all their length and width, they could not have been more than an inch or two thick. In fact, they looked like dreadful animated ribbons on the

dusty path as they shot along at race-horse speed.

It was their heads, however, which bothered Frank most. Somehow, they looked weirdly human, as though the skull of a man had been run intact through a clothes wringer. The flattened eyes were there, the protruding nose and square chin, coasting only a fraction of an inch above the ground. And the creatures were spaced evenly along the track, as though in some intelligent formation.

"They give me the jitters," whispered Marie, who stood her ground, determined to shame Bert for his cowardly retreat. "That first one looks like Lee Wong, the laundry-man."

"Shut up!" Frank realized their grave danger only too well. "They may hear us. Don't move. They're watching the path and may not see us."

For a few seconds it did look as though they would escape, for the flat things paid no attention to them but swept down the path without hesitation until they came to the pool of blood where Frank had killed the "fish."

Here they stopped—there were five of them in all—and held what looked to be a hurried conference. They seemed to use long antennæ which sprouted from their faces like mustaches as some sort of a means of communication.

Coming out of their huddle, they began to explore the sides of the path while the humans held their breath in agonized stillness. One of the things at last came upon Bert's footprints and scuttled along them in pursuit.

The pharomic, who had stopped after running several hundred yards, saw his pursuer coming and let out a yell of terror as he began another

sprint. He had not gone a hundred yards when he was overtaken. Frank saw him lift one foot to trample the hideous head into the ground. The next instant he screamed in agony as a sheet of red light shot along the ground toward him. An instant later he plunged sideways into the moss.

"Frank! Help! They've done something to my feet! Come kill the damned thing! Ow! They're murdering me!" he wailed like a small child.

But Frank was unable to help. The remaining flat things at last had discovered him and his companions and surrounded them, as though waiting for a hostile move.

Tentatively Frank thrust the end of the tripod at one of them. A flash of flame burst from some instrument held in the forward claw of the one Marie had called "Lee Wong." The end of the tripod fused and melted away.

Frank's flesh crawled at the thought of the tortures which probably lay before them at the hands of these monstrous beings. The thought flashed through his mind that perhaps it would be wisest to slay Marie and the doctor with the tripod before they could be captured. Then his natural optimism revived, and he determined to meet the situation with a smile, no matter what the future might hold.

"Phew," he groaned, trying to be comic despite his dry throat. "Now what's to do? Mustn't monkey with these babies. They're poison. All right, old boy," he added, bowing to the one who appeared to be the leader. "What's next on your snaky highness's program?"

For answer the flame, much diminished in power, swung until it struck his right foot. Instantly the leather of his shoe became painfully

hot. Frank lifted the foot and stood dubiously on one leg, like a crane. The beam did not travel upward, as he had expected, but shifted to the other foot. Perforce he stood on the right leg and lifted the left.

"Reminds me of those old stories about how Western gunmen made their victims dance by shooting at their feet. Maybe that's what he wants." He executed a few steps, which disconcerted the enemy as much as if he had vanished into thin air. He and his companions went into another huddle, feelers touching, exactly like a group of football players confronted by some unexpected strategy by the opposing team.

In his dance, Frank had moved several yards up the path. When the leader of the flat people returned to the attack, the ray was much diminished in power. Tentatively, the youth made a step down the road. The power of the ray increased agonizingly. He retreated, and it faded once more.

"Looks as if they were inviting you to pay them a visit," Marie suggested through white lips. She and the doctor had not yet been discovered, although they stood in plain sight only a few feet off the path.

A renewed bellowing from Bert made them glance in his direction. The clerk had arisen and was hobbling frantically toward them, prodded by a shaft of light.

"Come on, then!" Frank could not help laughing at the ridiculousness of their dilemma, although he was casting desperately about in his mind for some means of escape. "Might as well humor them. They'll kill us without a qualm if we don't. Hey, dad, come out of it. This is no time to be day-dreaming."

So, herded like cattle, with the mysterious ray ready to inflict pain-

ful punishment each time they deviated from the path, the four dispirited humans plodded up the lane, all of them, with the exception of Bert, trying to pretend that the experience was only a lark. Frank's heart swelled with pride at Marie's grit, and his hand sought hers.

For a long while the doctor seemed sunk in thought, as though he were trying to solve a difficult problem. Hands behind his back, he hurried along. Then he cleared his throat and touched Frank's arm.

"I once had a mathematics professor who held that life was possible in two dimensions as well as three."

"Meaning what?"

"Why, I'm just wondering. These devils seemed startled out of their wits every time you jumped into the air. And notice their eyes! They move from side to side, but never up and down. Frankly"—he leaned closer and whispered the words as though afraid of being overheard—"I doubt if they know the meaning of up and down at all. And if that's so——"

During the last few hours, Frank had stopped regarding his father's queer theories with condescension. The young man was growing up rapidly, and his smart-Alec attitude was being succeeded by thoughtful consideration.

"Do you think that gives us a chance to escape? Perhaps, if I——"

"Don't do anything rash, boy. They don't seem really hostile, and I'm confident they're highly intelligent. Probably they're taking us to their headquarters. Since we would be dead of exposure in a week's time, we'd better go along without making any disturbance. I only wish there was some way of communicating with them!" His scientific enthusiasm had superseded fear.

"They talk with their feelers. That lets us out."

"I'm not so sure of that. Let's wait and see."

Marie had been stumbling along on bare feet, around which she had wrapped strips from her tattered dress. At this point in the conversation, she stepped on a sharp stone and would have fallen had not Frank picked her up in his arms.

This action set their captors in a furor. They deployed right and left in search of the girl, and it was several minutes before they gave up the search and returned to prod the other captives onward. When Frank set the girl on her feet, a quarter of an hour later, the creatures again were thrown into a near panic and went into their customary huddle to discuss the matter.

"If we could climb a tree, they'd lose us completely," predicted the doctor. "As soon as we leave the ground, we cease to exist for them."

But there were no trees—only the endless plain.

THE SUN HAD spiraled across the sky twice, and the Earth and Moon, now diminished to pygmy dimensions by the onward flight of the comet, had followed it thrice, when they caught sight of a curious formation on the ground half a mile ahead.

Unquestionably it was a city, but a city such as they had never dreamed of. Along broad, radiating avenues were multitudes of what appeared to be open-topped, five-sided boxes. In and out of these, it could be seen as they approached, were moving thousands of the thin people, engaged in the pursuit of business and pleasure. The sides of these houses were only three or four inches high and painted in brilliant, contrasting colors. It was to be ob-

served, also, that the edges of the inhabitants were of the same color as their houses. That is, a family of five or six red "thinsies," as Marie had now dubbed them, would inhabit a house of the same color, while near at hand a green house would be full of grass-tinted monstrosities.

"They paint their visible portions to aid in recognition," the doctor suggested. "You will notice that the tops of their bodies are a uniform dull white."

"They won't have to paint us." Marie still tried to maintain her flip attitude, although it was wearing rather thin in spots and allowing a very frightened little girl to peep through. "We'll join the red tribe. We're sunburned like tomatoes."

The arrival of the humans created a sensation in the town. Great crowds of the creatures gathered along the sides of the streets to watch their progress, and the shrill humming which seemed an attribute of all of them rose until it all but deafened the newcomers.

But, unlike human crowds, this one remained orderly and let Frank and his companions pass through a narrow lane in the midst of the thoroughfare.

Bert was in an ecstasy of terror as the thousands of long feelers brushed his feet. More than once Frank had to steady him as he stumbled and would have stepped into the midst of the throng.

"Easy, old man," he warned the pharmonic, whose eyes flitted about continually, seeking some way of escape. "They've got our number. Buck up. We'll come out all right."

"I'll never get out of here alive." Bert's teeth were chattering. "If they'd only look up at us, maybe we'd have a chance. Ow! Take that devil off!" An impatient guard, an-

noyed at his hesitancy, had prodded his heel with the ray.

"Shut up, Bert," snapped Marie, whose nerves were stretched tight. "Why don't you act like a man? Frank's not afraid."

"Haven't time for that." Frank gripped Wheeler's trembling arm and yanked him forward as he saw signs of a disastrous panic. "Let's get out of here before we step on a few heads and get burned to death."

Straight through the city, which, except for its brilliant and barbaric coloring, presented a strangely depressing appearance, they were herded toward an immense polygonal structure in the mathematical center of the converging streets.

Here a conclave already was gathering to receive them. They perceived long lines of the thin creatures, most of them painted a brilliant yellow, pouring through the many doors and ranging themselves in well-spaced order inside.

"Might as well put on a show to impress them with our supernatural powers," said the doctor as they approached the walls of this building. "Remember that we present a totally different aspect to them when we sit down, lie down, place our hands on the ground, and so on. If we make enough changes, perhaps they'll decide that we are Old Men of the Sea and treat us with respect."

Suiting the action to the word, he stepped over the pygmy wall, and, followed by his companions, threaded his way between the rows of thunderstruck spectators until he reached a wide cleared space in the center of the building.

Their guards dashed wildly around the outside of the hall, as completely at a loss as an Earthly policeman would have been if his

prisoner had walked *through* a brick wall.

Meanwhile, in the center of the auditorium, the humans were performing strange antics. In unison they kneeled down, rolled over, danced, stood on one leg, and performed similar feats, while a swelling hum of astonishment from the spectators told them that their efforts were creating a sensation.

When the assemblage was humming and hissing like a collection of dynamos, a squad of red-painted guards at last pushed their way to the center of the floor and leveled their weapons at the Earth men. Instantly the latter stood still. Apparently this was considered a sign of surrender. At any rate, the commotion diminished and the jammed exits were cleared.

At last, when perfect silence had been restored, a vermilion personage, surrounded by a heavy guard, hesitantly approached the captives. Tentatively it thrust out its two-foot-long feelers toward Bert. The boy kicked out and stumbled back in dismay. For a moment it looked as though the personage intended to order his guards to destroy them. Frank's tongue clove to the roof of his mouth and a cold sweat broke out on the palms of his hands.

Then the yellow leader turned its attention to Doctor Strauss, who had advanced and stood unflinchingly in front of the others. It must be understood that the doctor's thin shoes long ago had disintegrated until now his toes stuck through the leather and stared back at the thinsie which inspected them. After some hesitation, the creature rested its feelers upon the exposed digits.

A look of amazement was born and grew on the doctor's round face.

"It's talking to me!" he exclaimed. "Some sort of thought transference

which only becomes operative through physical contact. He's apologizing for the rudeness with which we were welcomed!"

A burst of hysterical laughter interrupted his explanation. Marie's control at last had snapped.

"Oh, the doctor's talking with his toes! Shake toes with the rulers of Thinland, doctor. They're just plane people. This is worse than 'Alice in Wonderland.'" Tears trickled from her eyes, and she at last was forced to sit down on the floor, where she rocked back and forth, to the vast astonishment of the concourse.

"This is no time for nonsense, Marie!" Strauss warned her sternly.

"Look! Look!" she choked. "That red fellow has placed his feelers on thinsie's tail, and the next guard has connected with him. See, all the creatures are in contact. They're listening in on your conversation, doctor. Don't tell any state secrets. Oh, Frank, make me stop laughing! I—I can't." She was crying now with dry, jerking sobs.

Realizing that she was going into a real fit of hysterics, Frank lifted the girl to her feet, shook her, gently at first and then more vigorously, until her teeth rattled and her sobs ceased.

When they glanced back at Strauss they observed that the old man's face was at once blank and tense, as though he were trying to talk for the first time with a mechanical larynx.

"Here, take hold of my hand, Frank. You, too, Bert and Marie," he commanded. "I want you to hear what's going on and maybe help me out in the pinches. This is all new. These people think so differently from us that even their thought waves sometimes mean nothing to me."

He extended his hand as he spoke. Frank grasped it, and gasped as a shock ran up his arm and through his whole being. Instantly he was in tune with the strangest conversation of his life.

"Most illustrious sir"—the words formed distinctly in Frank's brain, like smoke rising through wet leaves—"you will excuse my forwardness in touching you, but this arises not from an ignorance of the usages of polite society, but from your apparent inability to understand the spoken word. Your lordship is so peculiar in appearance—five ovals connected to a much larger oval—that before we enter into further communications, may I beg you to satisfy the curiosity of one who desires deeply to know when his visitor came and how he is able to change his shape at will?"

"I come from space, sir." The doctor's words came distinctly to his son, although the little astronomer's lips had not moved.

"Pardon me, my lord, but is not your lordship now in space as he converses with me, King Toko of Umenia, even at this moment?"

"Would your majesty be kind enough to define space?"

"My lord, space is length and breadth prolonged to infinity. Every one knows that."

"You are wrong, sir," Strauss answered. "You imagine space as having two dimensions only. I come from a land of three dimensions—height, breadth, and length."

The king was quiet for a long moment as though trying to digest this amazing information.

"Would your lordship condescend to explain in what position is his third dimension, height?"

"It is up above and down below."

"My lord means that it is toward

PLANE PEOPLE

"Don't move! They can burn you to a cinder with those little tubes they have!"



and away from the center of Umenia?"

"Not in the least. I mean a direction in which you cannot look because your eyes are not made to look other than to the left and right. In order to perceive space you should have an eye on your upper side; that is, on what you would call your inside."

"An eye on my inside! You jest."

"Not so," replied the doctor, adopting the stately manner of the king's utterances. "I tell you I come from the land of three dimensions. I can look down upon the plane of Umenia and discern the inside of all you call solid. I can see that fifty guards are now patrolling the outside of this building. I can discern the contents of yonder strong box in which are stored many documents. Permit me to bring one of them to you."

A buzz of terrified astonishment greeted this announcement. This was intensified to a shrill scream

from the thousand onlookers as the doctor marched to the great box in the center of the amphitheater, lifted an inscribed tablet through its open top, and a moment later placed it before the king.

"Truly, you are a magician!" muttered the monarch.

"Not at all." The doctor now began to show his usual impatience. "You locked the box, but that did not prevent my reaching through its top—that which you call its inside—and bringing proof of my powers. This is due to the fact that you live upon a plane. What you style Umenia is a vast level surface upon which you and your countrymen move about without rising above it or falling below. My shape is not that of five ovals connected to a larger oval. That is only the edge of what I call my foot. In fact, I am not a plane figure but a solid, made up of an infinite number of circles, squares, and other geometric figures placed on top of one another. I am a creature called man. My name is Adolph Strauss."

"You talk in riddles, Adolph-strauss."

"Behind another proof, then," commanded the doctor. "I will lift my foot slowly. Order your guardsmen to hold it."

The king did so. Instantly six red thinsies leaped forward.

"We have him," they shouted. "No! Yes, we have him still! He's going! He's gone!" Their thin arms waved back and forth impotently as the doctor stood on one leg and winked at his fascinated son. Then, perceiving the other foot, they flung themselves upon it and shouted their victory as the king crawled up to make inspection.

"But this is not the same person!" said the baffled monarch. "Or, rather, it is as if he had turned him-

self inside out. See, the largest of the five small ovals is on the right side instead of the left."

"That is my other foot," the doctor explained. "I lifted the first foot into the third dimension. Now are you convinced?"

Poor King Toko was at his wit's end. He broke contact and conferred hastily with his sages. One of these, a decrepit creature with mathematical leanings, asked to take up the questioning.

"Tell me, Mr. Mathematician," resumed the doctor when the thought current had been restored, "if a point moves toward the center of Umenia, leaving a luminous wake, what name would you give to the wake that it would leave?"

"A straight line, of course," was the haughty reply.

"And if the straight line moved sidewise, parallel to itself, what name would you give the figure thereby formed?"

"A square."

"Now stretch your imagination a bit and conceive a square moving parallel to itself upward."

"What! Toward the planet's center?"

"No, no! Upward, out of Umenia altogether. I mean that every point in your—that is to say, in what you call your inside—is to pass upward through space in such a way that no point shall pass through the position previously occupied by any other point, but each point shall describe a straight line of its own."

"And what may be the nature of the figure which I am to shape?" the mathematician floundered.

"You will generate a solid, which will be bounded by six sides—that is to say, six of your insides. You see it all now, eh?"

But at that point the mathematician went violently insane and had

to be removed screaming from the hall.

The king, it developed, was no quitter. He once more took his place by the doctor's side and begged further enlightenment.

"Be thou juggler, enchanter, dream or devil, I will make yet another effort to comprehend the meaning of your lordship's words," he said. "Yet I must confess that I cannot grasp your reasoning."

"Why don't you lift him off the ground, dad?" Frank queried. "That should convince the damned idiot."

King Toko caught the meaning of this remark, although, luckily, not its disparaging tone, and shuddered throughout the yellow length of him.

"Lift me out of space?" he cried. "No, never. My people would not permit you to lay hands on my royal person."

"How about one of your councilors, then?" suggested Frank.

The king thought deeply for several minutes. Finally he replied:

"Very well. Lift Puro, my secretary of state. He is old and feeble, and if he dies there will be no great loss."

But the sage in question had no intention of being made the subject of any experiment. Wildly he scuttled toward an exit and was only captured as he was leaving the building.

Brought back, he hummed and shivered in a very nightmare of terror until a sharp command from the king silenced him. Then, like a lamb to the slaughter, he crept forward to his doom.

Overcoming his distaste for the creature, Frank gripped the ribbon-like sides and hoisted mightily. Puro was surprisingly light for his size and came away from the ground

like a feather. For a moment his slit eyes closed, and Frank feared that he had died of fright. Then his eyes slitted open and his excited buzzing threw the whole auditorium into another uproar.

"Either this is madness or it is hell!" Frank caught the thought vibrations as the poor fellow squeezed his eyes shut once more.

"It is neither," said the doctor. "It is knowledge; it is three dimensions. Open your eyes again and tell what you see."

Slowly Puro complied. The hall was hushed as he began to speak.

"It is a new world!" he chattered. "I see the inside of this creature which has lifted me, yet I can see no heart, nor lungs, nor arteries, only a beautiful, harmonious something. I see a space that is not space. I see what I had considered my own inside, and yet it is not my inside. I see both the inside and outside of this amphitheater, even as the stranger has described it. I see the inside of the strong box. I see the interiors of houses in the city. Behold, I have become a god, I, Puro, whose death, O king, you just said was of little importance!"

"Set him down. He grows blasphemous," commanded Toko. "I believe! Strangers, you shall have the freedom of the city and shall teach me and my people the secrets of the thing you call space. A holiday shall be declared in your honor, and you shall want for nothing so long as you remain with us."

Frank did as he was bid, and old Puro, dazed by his experience, crept away to cogitate in one corner of the hall.

THEN BEGAN a period of existence which was like heaven to the castaways after the privations they had suffered while roaming the

plain. Their every wish was granted. They lived on the fat of the land—strange vegetables like flat beans and carrots, steaks from the fishlike creatures which the thinsies herded like cattle and which also provided a thick milk.

The doctor set up his battered telescope near the little hut which they had constructed near the palace and made endless calculations as to the speed and orbit of the comet on which they rode. He clung desperately to the hope that they sometime might return to Earth, but admitted frankly that there was not one chance in a billion of their doing so. In technical language hard for the others to understand, he explained that the comet, in colliding with the Earth, had been thrown into a parabolic orbit around the Sun which sometime might bring it back to a similar juxtaposition with its heavenly neighbor. He talked of paralaxes, relativity, and space time as glibly as though he understood all about them, and only Frank's caustic comments could bring him back to consideration of things nearer at hand.

Apparently there was little to support his theory. The Earth became smaller and smaller until it appeared only as a bright star with the Moon a tiny speck beside it. They approached the orbit of Venus until that planet grew to the size of a dinner plate and then receded as their wabbling "phonograph disk" swept into the outer reaches of space. But the spiraling Sun and the days and nights of four hours each continued unchanged. And every night the driving bulletlike rain lashed Umenia with a thousand whips, and every day the heat stifled them.

The king's sages came to them each day, and the doctor spent hours

in trying to open up to them the vast reaches of three-dimensional existence. Marie and Frank joined in this work as best they could.

"Well, Marie," Frank asked one day after she had been explaining to the king himself methods of preparing food on Earth, "do you think you could teach the old boy to mix a cherry soda?"

"I might," she laughed, "if I could only make him understand what a faucet is. He's promised to send some of his metal workers so that we may show them how to make pipes and boxes and other 'high things,' as he calls them." She busied herself tidying her growing hair before the big lens from the telescope.

Lately Bert had started taking long, solitary walks outside the city walls to relieve his boredom and brood over his troubles. His excuse was that he did this because he hated the sight of the thinsies. Only that morning, however, Frank, on a jaunt of his own, had come upon the other in close conversation with Puro, the secretary of state who had been "elevated" at the auditorium.

"You don't seem to fear Puro much," he now remarked, recalling that strange sight.

"Aw, I was afraid the thing would burn me if I didn't talk." But his little eyes shifted back and forth.

Frank thought no more of this conversation until the next day, when he was starting across the city limits to examine a formation not far away which the doctor believed might contain gold.

When he reached the city wall, however, he found a squad of red guardsmen drawn up to block his progress. Their vicious-looking ray guns were held at ready, and they plainly meant business.

Bending down, he touched the

feelers of the commander and demanded an explanation.

"The king has issued an order that no humans are to be allowed outside of the city," was the sharp retort. "You must ask him the reason."

Furious, yet frightened by this unexpected shadow upon their idyllic existence, Frank hurried back to their house and reported the circumstance to his father.

The doctor's face went white as he listened.

"I can't understand it," he said. "Has this whole thing been a trick to lull us into security? Are these creatures really as heartless as they look? Come." He pulled on the tatters which remained of his coat. "We are lost if we accept this indignity without complaint. Let us go to Toko at once."

The king welcomed them in the throne room as though nothing had happened, but when they demanded an explanation he moved his feelers uncertainly, stammered and sputtered as though he were ashamed of what he had done, but refused to lift the embargo.

"But what have we done to deserve such an indignity?" shouted the doctor, forgetting that the monarch could only understand his thought waves.

If a Umenian shrug had been possible, Toko would have shrugged.

"It has been brought to my attention that you are planning to escape from my city," he said at last. "I find your instructions so invaluable that I do not intend to let you go. I have spoken." So saying, he removed his antennæ from the doctor's toe as an indication that the audience had ended.

"Well, what do you make of it?" Frank asked as they left the spacious pen which served Toko for a palace.

"Could it be that Bert was trying to run away when the secretary of state caught him?" the doctor asked. "I gave him credit for more sense than that. There's no place to escape where he would not starve to death in a week."

However, Bert violently denied that he had endeavored to escape. Rather unnecessarily he cursed Puro, and at the same time begged his companions to respect the king's orders to the letter.

"I tell you we'll all be burned," he whimpered. "I'm not going outside the house."

After this incident, life went on as usual, except that now a shadow of fear hung over them. Although the sages came for instruction as usual and treated them with stately courtesy, the humans felt that they were being toyed with and, when their usefulness had ceased or they had offended against the mysterious laws of the country, they would be put out of the way without compunction. At least, Marie, Frank, and his father were gripped by this unrelenting fear. Strangely enough, Bert, after a few days, broke his resolution of staying at home and once more started his roaming. He swore that he never left the city, even when he had a chance to evade the guards; but Frank once caught him cleaning his cracked shoes of what looked suspiciously like country mud.

"The days aren't so bad," Marie once remarked after a week of this harrowing existence. "Then we can see the creatures coming if they attack us. It's the nights that frighten me. Sometime when we're asleep they'll come slithering over the floor, and that will be the end of us."

"Nonsense!" Wheeler's courage caused them to cast surprised glances in his direction. "The flat-

landers never go out when it's raining. We're perfectly safe at night."

SUNLIGHT THAT FILTERED through the thatch awakened Frank early one morning. Bert already had gone out, but the doctor still snored heavily, worn out by his studies.

The boy arose from his hard moss bed, drew on what few clothes were left to him, and tapped lightly on the screen which divided Marie's room from that of the men.

There was no answer.

He knocked more loudly and called. Still no answer. His heart filled with a nameless fear, he pushed aside the rickety door and looked in, then gasped in amazement.

The moss of which Marie had made her bed was scattered all over the floor. The few articles which she had collected to adorn the walls were likewise in disarray. A great hole was torn in the flimsy outside wall, while a strip of fiber rope lay in the middle of the room. He stared around fearfully.

"Marie!" he shouted wildly, knowing there would be no answer. "Where are you?"

His heart beat heavily, and his fists doubled to meet he knew not what menace. Could it be that the thinsies, creeping silently in on their captives, had carried off Marie and Bert for some evil purpose and without waking the others?

But his love for the girl overcame his fear. He leaped through the opening in the wall, ready to battle to the death. Outside, he received another shock. On the ground which had been protected from the rain were the marks of footprints. They had been almost obliterated. Nevertheless, he recognized them as having been made by Bert's dilapidated narrow shoes.

He dashed back into the house and shook his father into wakefulness.

"Bert's kidnaped Marie! Quick, let's go after them. The sneaking little coward! I'll break every bone in his body this time, and you can't stop me."

"Why, that's ridiculous!" cried the doctor. "Where could he take her? The country is as flat as your hand."

Nevertheless, after examining the trampled grass, he had to admit that the Umenians had no part in the affair.

Frank was for starting after the pair at once, but his father pointed out that they probably had been captured at the outskirts of the city; or, if they had not, he and his son undoubtedly would be turned back, now that day had broken.

"We must report to the king at once. He'll send a squad of red guards after them and bring them back in an hour or so. The country is as flat as your hand, and there's no place to hide.

At the palace, however, their way was barred, an unusual procedure which fretted their nerves still further. Frank's mind was full of dreadful pictures of what might happen to Marie. He pictured her lost and starving in that untracked wilderness. But he bit his lips until they bled and refused to let his thoughts carry him farther.

After a delay of several minutes, a yellow-tinted official approached and made contact with the doctor in the approved ceremonial manner, apologized for the delay, and led them through a labyrinth of chambers to the audience hall.

There everything was in buzzing confusion. Purple messengers scrambled hither and yon; councilors were grouped about the king, their delicate antennæ in quivering

connection with his. For all the world it looked like a gigantic ant hill laid open.

Toko broke contact as the Earth men were ushered in and buzzed a command that they be allowed to approach.

"Most illustrious sir," his majesty's thoughts fell over each other into his visitors' minds after a new connection had been made, "thanks for your visit, but I fear I shall have little time for you this day. My kingdom is in an uproar. Puro and members of an apparently harmless youths' movement which he recently organized have revolted, and left the city. Half my army has mutinied and fled with them.

"They escaped, a thousand strong, in the midst of the storm last night. Just now I received a messenger from Puro advising me that he and his followers had gone to Treeka, which is a little town near the rim of the planet and the place where he was born. He added that the Strange Tribes had promised to join him in an attack upon this city unless I agreed to abdicate at once.

"There is the messenger." He waved a stumpy, jointed leg toward a pile of charred flesh in the middle of the hall. "That was my answer."

A horrible suspicion formed in Frank's mind. Could it be that Bert had joined hands with the former secretary of state?

The king screamed with excitement as he read this thought.

"Yes, O king," admitted Doctor Strauss. "The member of our party whom you call the 'Fearful One' also has fled, carrying with him the girl known to you as the 'Smooth One.' We know, also, that he held several conversations with Puro just before you forbade any of us to leave the city."

"Why did you not tell me this?"

wailed Toko. "It was Puro who warned me that you were planning to escape. I see it all now. He had been plotting with the Fearful One and did not want you others to scent the plot. Oh, sir, I beg your pardon humbly for the injustice I have done you."

A new thought struck him. "Does this mean, illustrious sir, that the Fearful One will teach Puro's men to bring the terrors of your third dimension against us?" he quavered.

"I fear so, your majesty," answered the doctor. "The Fearful One knows much of chemistry and might not only make dreadful explosives but also machines to lift your enemies above you, where they could do great execution with their ray guns."

"This is the end of my reign, then," muttered Toko, his whole yellow body falling limp. "I must abdicate to save my people."

"You're wrong, old fellow," interrupted Frank, who had been holding his father's hand all this time and thus had been in tune with the whole conversation. "Why don't you put my father in charge of the defenses of Umenia? His wisdom is great."

The king's slit eyes brightened with hope. "Your son has inspired me with new hope, O illustrious sir!" he exclaimed. "It shall be as he suggests. You shall have Puro's place as secretary of state and teach my army, also, how to elevate themselves. Your son shall be minister of war."

"Not so fast," interrupted Frank. "My first duty is to the Smooth One. I'm going to rescue her. If I succeed and return, I shall be glad to accept your offer. Otherwise—" He shrugged his shoulders, then added: "If your majesty will be pleased to grant me a safe conduct out of the city, I will be going."

Toko scribbled a few lines on a tablet. Snatching this with a hurried word of thanks, Frank stooped and grabbed a ray gun from the claw of a near-by guard. Then he vaulted over the wall of the audience hall, dodged hurrying Umenians, reached the street, and raced back to the hut to make an effort to pick up Bert's trail.

Once there, he made a discovery of something which he had overlooked in his first excitement. Leading away from the hole in the wall of Marie's room was a faint trail of moss fragments. He surmised that the girl must have snatched a handful of this after Bert had bound and gagged her, and dropped it bit by bit to guide possible rescuers. She had pluck!

The trail did not last long, but was sufficient to give Frank an idea of the direction his rival had taken. This was straight toward the rim of the comet on the line of the least resistance; that is, on the radius of a circle.

Aided greatly now by the centrifugal force which had so hindered him in reaching the capital weeks before, Frank started along the dim trail in ten-foot leaps, praying that he might not be too late. At the city gate his passport let him through, and he plunged on into the open country.

Frank had not gone far before he saw on the wet grounds signs that Bert had had trouble in carrying his struggling burden. Marie was not exactly plump any more, due to the lack of candy and sodas and also because of the athletic outdoor life she led on the comet. But neither had she become a featherweight. Half a mile from town, he came upon dim tracks in the road which indicated that the kidnaper had set the girl on her feet, then forced her on-

ward, probably at the point of a weapon.

The pursuer redoubled his speed in hope of overtaking them soon. He had passed the last straggling suburb and was in the open country now. The land on either side still was intensively cultivated, however, and grew the strange, flat vegetation of Umenia in luxuriant abundance. Now and then he saw a farmer crawling about the fields.

Despite his haste, Frank could not help marveling anew at the trees which bordered the road. They lay flat on the ground with their branches pointing like magnets away from the center of the planet. These, he thought, would serve to keep him from losing his way and enable him, if he should rescue Marie in a wild and uninhabited district, to make his way back to the capital without difficulty. He hoped so, anyway.

After another hour's travel, he brought up short at a crossroads. On the damp ground were countless claw marks, made undoubtedly by Puro's revolutionists. Evidently Bert had joined them here. Frank slowed down now, realizing that a direct attack upon such a force would be fatal. He kept on doggedly, however, and soon was rewarded by hearing in the distance the buzzing like that of a thousand hives of bees, which marked the location of the enemy.

He kept at a safe distance until the short day had passed and Puro's men encamped beside a wide and shallow river. As the Sun slid over the edge of the comet, the inevitable clouds rolled down and the rain soon was lashing Frank's back until it ached.

He waited until the camp appeared asleep; then, disregarding his discomfort, crept toward it, hoping

to evade any guards and effect a quick rescue.

Hardly had he approached the first line of shelters—they were nothing more than strips of metal set up on the windward side of each company of soldiers—than a flash from a ray gun seared the vegetation to cinders, despite the rain. The blast missed him only by inches. Instantly other sentries took up the fusillade. Frank was faced with the alternative of being burned to a crisp or developing tactics which would throw his attackers into confusion.

Unhesitatingly he chose the latter course. Reaching down, he grasped one of the metal strips which served as a "tent" for the soldiers. It was about eight feet long, three inches wide, and an inch thick. Using it like a pole vaulter, the youth hurled himself in great leaps straight into the heart of the enemy camp.

The strategy completely baffled the sentries, who, of course, could only see their enemy when he was standing on the ground. They set up a wild buzzing as they scuttled back and forth, which in a few moments threw the whole camp into turmoil. As he progressed in eight-foot bounds, Frank saw the companies scrambling to arms like gigantic ants whose hill has been molested. Speed was his only salvation.

As he neared the center of the encampment, Frank caught sight of Bert, who was crouched in the dim light beside a still figure on the ground. The chemist had seized a ray gun and was firing frantically at the oncomer. But he was trembling with fright and inexperienced with the weapon. To add to his difficulty, his enemy altered his jack-rabbit course repeatedly as he came charging forward.

At last he was upon them. Gath-

ering himself for one supreme effort, he hurled himself feet foremost, striking Bert squarely in the chest and hurling him head over heels into the mud.

But Frank did not escape unscathed. For a fleeting moment the ray had made contact! The effect was as if his body had been seared by a white-hot iron.

Staggering, dazed, he bent down, grasped the girl, who was bound hand and foot, and succeeded in throwing her over his shoulder. Then, snatching up his pole, he started a wild retreat. His arms seemed drained of all strength and felt like blazing torches. He gritted his teeth and lurched on, while ray guns flashed in all directions, the rain poured down in lashing, horizontal torrents, and the wind howled.

How he escaped from that inferno, he never knew. Dimly he recalled reaching the open country. Still more vaguely he remembered that when the pursuit had died away he had allowed Marie to slip from his shoulders and had cut her bonds. After that—nothing.

A long while later Frank came back to consciousness to find himself lying in his old bed in the hut. A dim light shown by the bedside, and the rattle of paper near by convinced him that his adventure had not been a hallucination.

His old fear for Marie came back to him with a rush as his mind cleared. He tried to sit up, but felt a detaining hand on his shoulder. Marie was bending over him. For a moment he stared up at her sweet, anxious face.

"Lo, darling," he said softly as though he had always used that term of endearment. "You're really beautiful, aren't you?"

She blushed.

"Thank God, you have come back to me," she whispered, kneeling beside him. "For a while we thought that——"

Suddenly tears filled her eyes. She bent down and touched her lips to his in their first kiss. Frank did not marvel at this change from their almost casual relationship in the past. It seemed now as if they had always been lovers, but had not known it.

"Tell me about yourself." He captured one of her slim hands in his.

"You know most of it already. Bert sneaked into my room that morning and tied my hands and feet before I awakened. The storm was making so much noise that I couldn't rouse you by my screaming. He jammed a gag into my mouth. Then he dragged me out and carried me for a while. When he wasn't looking, I dropped bits of moss as a guide to you. I knew you would follow.

"Bert wore himself out in the first half mile. When he set me down, I hoped you would catch up with us. But he prodded me along with a ray gun until we caught up with Puro. Then I almost despaired, until you came flying through the air and picked me up."

"Did Bert molest you in any way?"

"No. Puro kept him too busy talking about plans for three-dimensional weapons and explosives. You see, that old flat devil has a little town on the edge of the planet. Ever since he was elevated he has been planning a revolt. Our spies tell us that he is already manufacturing munitions according to Bert's specifications."

"Wait a minute. How long have I been lying here like this?"

"Two weeks, darling. You had a

terrible burn. We thought you'd never recover. The best thinsie doctors from all over Umenia came to treat you."

A WEEK LATER, Frank was strong enough to be up and about. Slowly he threaded his way through the Umenian capital, which had become an armed camp during his absence, and marveled at the changes that had come over the thinsies since he last had seen them.

"Oh, you've got a lot to learn about the Umenians," chuckled the doctor. "They aren't really two-dimensional, of course—no living thing could be. They merely thought in two dimensions, just as we think in three, merely because we've had no need of a fourth dimension. This flat world allowed them to fulfill all their desires without rising above it. In fact, they prefer to live in two dimensions. It was an awful struggle to elevate them."

Since Frank had left the city, however, the inhabitants seemed to have grasped many ideas of the third dimension. The walls were surrounded by shallow defense trenches; many of the soldiers were moving about dragging supply wagons behind them, while a company or so of the thinsies had been provided with little tricycles on which their heads and what might be called their shoulders rested. These vehicles lifted their occupants two feet above the ground and enabled them to become conscious of height for the time time in their history. Frank was amazed to see the ease with which they scooted about.

"I had intended to equip the whole army with those 'elevators,'" explained the doctor, "but the king wants to attack with very little delay, so we could get few of them

completed in time for the advance. Don't you think they'll give us a great advantage over the rebels?"

He wilted visibly when Frank explained that Bert probably would hit on the same idea.

"Don't think he has it in him," grunted the little man. "Well, we must lick him, anyway. Our lives won't be safe until we do."

Even Toko had succumbed to the three-dimensional urge. He greeted the convalescent from a raised metal throne when the trio of Earthlings went into the royal tent. He still used his antennæ to communicate with them telepathetically, since even the doctor had never been able to learn the buzzing audible language of the Umenians.

"Your illustrious father has indeed opened my eyes to a new world," he said courteously. "He is now my secretary of state and is going to lead the attack upon the rebels."

"But I don't know the first thing about military tactics," the doctor groaned after they had finished paying their respects to the monarch and were alone once more. "What shall I do?"

"I don't know a thing about fighting, either," said Frank. "Now, if it were football——"

"Fine," cried Marie. "Let's make a football game out of it. How would you proceed?"

"Well, the flatheads who aren't provided with kiddie cars could be the linesmen. We'll divide the Umenians who have been elevated into two divisions of one hundred each to represent the right and left half backs. The three of us will receive the ball at full back."

"What ball?" asked the girl.

"Let's not worry about that just yet. The capital will be the goal post for old Umenia. If Puro is de-

feated, he'll fall back on his city. We'll let the enemy kick off in mid-field and try to run the ball clear back over the edge of the planet."

"How about the strategy of the home team?" queried his father.

"That's right. Wheeler's knowledge of chemistry is the ball you were asking for. Puro hasn't had time to construct guns, but he could have made bombs and grenades. We'll have to use open formation, then."

As the Sun slanted toward the zenith in closer and closer spirals, King Toko's army marched, as queer a sight as a vision in a nightmare. In the van wriggled eight companies of one hundred flatlanders each. Behind them scooted two hundred others, mounted on their platforms and able to wreak destruction above the bodies of the "linesmen." In the rear of the thinsies marched Frank, the doctor, and Marie. The girl had refused to be left behind, declaring that she was as good a soldier as any man there.

Ten days of travel brought them to Puro's camp. But the alarm had gone before, and the rebel army was drawn up to receive them.

"Thought so," said Frank. "Notice the artillery."

In the rear of the camp could be seen a line of earthworks, over which peeped the muzzles of what looked like a battery of cannon. Behind these, Bert could be seen crouching low to the ground.

"I thought you said there would be no cannon!" Marie began.

"Just sheet-metal mortars," explained the doctor. "Range probably only a few hundred yards."

"Why not try a flank movement and force them to remount those guns?" asked Frank.

"You forget that we're on the 'up' side of the planet," returned his fa-

ther. "If we flank them, our positions will be reversed, and we'll find it hard to charge them against the centrifugal pull. No, we'd better advance in close formation until they open fire, then spread out and continue by rushes. Their first shots will go wild and do little or no damage."

Striving to conquer a shaky feeling in his legs, the doctor then gave the necessary commands to the captains of the Umenian companies, and the advance began. Frank meanwhile renewed his pleas for Marie to stay behind, but she shook her head stubbornly and gripped a ray gun as she plodded along beside him.

"If you are defeated, I can't escape," she said. "If I'm with you, maybe I can help. The battle isn't always to the strong, somebody said."

The little army went forward with a rush; but, strangely enough, found no resistance to their advance. Instead, Puro's forces, at the head of which could be discerned Bert's spare figure, turned and scuttled pell-mell from the trenches.

Buzzing like maddened bees, Toko's forces poured over the deserted breastworks. Frank, Marie, the doctor, and a few of their thinsie aids were quickly outdistanced by the victory-seeking soldiery.

Too late Frank scented an ambush. They had reached the center of the enemy camp when he shouted wildly: "The cannon! Mind the cannon!"

Looking behind them, the Earth people gasped in dismay. Pale, greenish gas was belching from the muzzles of the flimsy "guns," and, carried by the planet's unvarying wind, was drifting silently down upon them.

"Chlorine gas," cried the doctor, cold fear gripping his heart. "Get

above it, Frank, or we're done for! I'll run ahead and warn the king. You two and what thinsies have stayed with us try to capture the battery and turn off the gas."

Frank and Marie went into hurried contact with their aids, who numbered scarcely more than a dozen, then swung to the right to dodge the deadly, spreading fog, and began a hampered run "uphill" to the guns. Hardly had they started, however, when the sand seemed to boil to right and left of the emplacement and a score of Puro's men, who had lain hidden beneath the smoothed-over surface during the advance, crawled into view. Ray guns were grasped in their claws, gas masks were strapped over their ugly flat muzzles, and their foreparts were elevated by tricycles similar to those used by the royal forces.

Then began a strange duel. The red heat rays of the loyal Umenians spurted forth on their errands of destruction, but were met in mid-air by the flashes from the guns of the rebels. The result was a series of loud explosions which canceled the effects of both weapons. Back and forth wove the beams, dimly visible in the Sunlight, always keeping in crackling contact except when one of the opponents would slip his beam around that of his enemy, exactly as a fencer uses his rapier. Then would come a short, agonized buzz, a ray gun would tumble into the sand, and a flatlander would stiffen in smoking death.

Frank and Marie soon found themselves engaged with two of Puro's soldiers. Her face white and terror in her eyes, the girl yet handled her unfamiliar weapon like a veteran, dodging out of harm's way as a red beam flashed close, swaying, side-stepping like a swordsman.

Whenever Frank could find time to steal a glance in her direction, he was amazed to note the grace and agility with which she fought.

It was one of those side glances which almost signed his death warrant. At the instant when his eyes were refocusing on his own enemy, he stepped into one of the holes wherein the rebels had been in ambush, stumbled, and went to his knees, his gun flying into the air.

The creature with which he had been engaged hesitated a moment as its untrained eyes tried to follow this quick maneuver. Then it located its enemy again, and the ray swung steadily down to burn the enemy to a cinder.

Out of the corner of his eye Frank saw Marie swing her weapon to focus on his foe. This left her unprotected from her own adversary. He tried to shout a warning—to tell her not to mind him but to save herself—but at that instant heard a reassuring hiss from behind him as one of his flat aids, recognizing the danger, scrambled into the battle, caught Marie's adversary off guard, and reduced it to smoking ruin.

"Keep your mind on your work after this, Frank," gasped the girl. "I can take care of myself. Anyway, we've got them on the run."

Surely enough, the growing casualties in the ranks of the opposing company had broken its morale. Abandoning the unwieldy tricycles, the defenders of the battery were scuttling madly to safety, leaving the gas guns unprotected.

It took Frank but a moment to shut off the chlorine valves, but he could do nothing to stop the cloud of gas already emitted, which was rolling down the plain in a thick blanket toward friend and foe alike. From the other side of this curtain

loud explosions and excited buzzings told that Puro's men had stopped their feigned retreat and turned upon the king's forces, who thus were to be held in a trap until the gas swept down to strangle them.

Panting with exhaustion, Frank and Marie watched the tumbling green waves sweep slowly over the sand. They were silent in dazed horror. Frank tried to speak, but his dry throat would not emit a sound. He pictured his father strangling, falling, dying behind that curtain, and a wild impulse to scream, to fling himself into it, almost overpowered him.

"I don't feel so badly for the thin-sies," he heard Marie confessing softly as she clung to his arm. "They never seem quite real to me. But your father is caught in there. We'll have to save him, somehow."

"If we could only let them know that the gas blanket is only a hundred yards thick, I believe they could charge back through it without much damage," replied the other. "But if they let it drift down on them while the enemy stops their advance, all will be dead before it drifts on. It's moving very slowly and won't pass over for minutes. I'm sure of that."

"A hundred yards thick, you say?" Marie gasped.

"Well, maybe two hundred. Not more than that. Wait. I'll chance it."

Suiting the action to the word, Frank ripped off what remained of his shirt and wrapped it around his nose and mouth. "Good-by, Marie," he cried thickly through the improvised mask, and was gone before she could protest, running straight toward the gas screen.

"He'll never make it!" the girl moaned in terror. "He has to come

back through it, too, and he's still weak."

She wrung her hands as she watched him disappear into the mist.

Frank ran as he had never done on the gridiron. The devilish green poison burned his eyes and blinded him; his lungs soon began quaking for air, but he kept on doggedly, holding his breath as his thoughts raced ahead. Treated the old man bad enough. Couldn't let him be trapped like this. Must get through!

His knees grew weak as though they were turning to water. His head throbbed like a drum. Still there was no end to the gas, but the sounds of fighting grew stronger, telling him that he was traveling in the right direction.

Like a spring mechanism which has run down, his legs sprawled from under him. He plunged forward a few more steps, took a long, tearing, involuntary breath, and fell. All over, he mused vaguely.

But the air did not claw at his lungs as he had expected. Then he realized that he had broken through the screen somewhere before he collapsed. This thought and the fresh air revived him. He scrambled to his feet and, reeling and groggy, stumbled toward where Toko's men were engaged by their gas-masked enemy.

"Dad, dad," he panted as the doctor came running to meet him. "Turn them back! The gas is only a hundred yards thick. We've shut it off. If Toko's men retreat through it, they can escape. If they stay here, they'll be suffocated."

Doctor Strauss shouted with delight at this chance for life and ran to communicate with the king. Toko communicated with his captains. And within a few minutes after Frank had burst through the screen, the royal army was in or-

derly, though precipitate, retreat, leaving their enemies nonplused at what they must have considered a suicidal flight.

Back through the green hell Frank plunged, one arm around the shoulders of his father, pushing the old man ahead as both were shaken by fits of coughing. No use trying not to breathe at the slow pace he now was obliged to take. Must use only the tops of his lungs. Easy there, don't cough!

He dragged the doctor forward as the latter's steps began to falter. At last he was forced to pick the older man up and carry him. If only one of the hundreds of Umenians whom he heard coughing and rustling over the ground at his feet could rise up and help him carry his burden!

Marie was lifting his father from his back! Frank slipped into pleasant oblivion.

HE REVIVED to feel a cooling sensation in his raw throat. He felt the clawlike hands of a thinsie doctor manipulating his chest. Through red-rimmed eyes he made out Marie's face bending over him.

"I'm all right, darling," he managed to gasp.

"Most certainly you are out of danger, honorable, sir," he felt the thoughts of his physician humming through his brain. "Your courage has saved Umenia. Your noble parent is doing nicely, also. Do not exert yourself, however."

"How is the battle going?" the patient gasped, his blurred mind filled with visions of the masked enemy pouring down upon them.

"We've got them licked," Marie answered. "We followed up the gas curtain and struck them while they were still demoralized at Toko's retreat. Our men ran so fast that they were practically unharmed by the

chlorine gas. The field is a shambles."

And, in fact, when Frank insisted on sitting up, it was to witness a debacle. Not far off was a little group of perhaps a hundred survivors from the rebel army. These were surrounded by buzzing hordes of royalists.

Puro's men presented a sorry spectacle. Their flimsy "elevators" were almost all lost or broken, and they were reduced to their former two-dimensional state.

As his vision cleared, Frank drew in his breath sharply. In the center of that circle Bert Wheeler was crouched, shouting unheeded orders, imploring, yammering in a mad frenzy of fear.

"Can't we save Bert?" croaked Frank. "After all, he isn't bad enough to deserve a fate like that."

"I'm afraid not," Marie sighed. "The king and his men blame Bert for this whole affair."

The group of survivors was dwindling rapidly as they spoke. Time after time little puffs of smoke would arise and leave a rebel shriveled into a pile of brownish ashes. Yet the doomed creatures kept up a steady return fire and held off the royalist hordes.

A few minutes more, however, and they must have realized that it was all over. Suddenly Puro's men ceased firing. Then, with one accord, their ray guns swung inward and flashed together.

Even at that distance, the other Earthlings could see Bert's agonized expression as he leaped to his feet screaming when the rays focused their combined strength upon him. For a moment he stood with his feet enveloped in a sea of red flame. Then he began to grow shorter! Screaming still, he seemed to melt a foot into the ground before he flung

out both arms and crashed forward on his face.

The shafts of light did not falter. Bert's writhing body continued to melt into the sand. His screaming became a moan and died away. Puro's false leader had paid the price of failure.

Frank could not tear his eyes away as the royalists, infuriated by this thwarting of their efforts to capture the unfortunate youth, went into action. Their rays swept the nearly defenseless rebels like a scourge. There was a spurt or two of red flame in reply. Then the last of Puro's following was gone.

"Oh, how awful!" whimpered Marie, shuddering convulsively as she clung to her lover. "Poor old Bert didn't deserve that."

And that was all the epitaph he received.

Darkness was falling by the time King Toko had rallied his forces and paid his respects to his secretary of state, who now was able to sit up and talk a bit, although his lungs had been badly scorched by the gas.

"Will you deign to return to my capital city, most illustrious sir, and receive all the honors which Umenia can confer upon you?" his majesty demanded as he and the Earthlings sat in contact on the blood-stained field.

"You honor us," sighed the little doctor a trifle bitterly as he glanced up into the evening sky where the Earth hung, green and fair, like a giant scythe blade. "We will try to repay you for your hospitality by teaching your people all that we know."

Hours later, as the two disabled men and the girl were being dragged homeward over the sand on a makeshift litter made of discarded elevators and drawn by a score of the

thinsie soldiers, the doctor began muttering almost deliriously.

"There are these rocket ships," he murmured while Frank and Marie clasped each other's hands and

smiled tenderly down at him. "Maybe we can build one and get back to Earth. Never can tell. What a write-up I'd get in the papers if we did!"

Energy of the Universe

REPORTS recently by Professor Robert A. Millikan, Doctor I. S. Bowen and Doctor H. V. Neher in *The Physical Review*, indicate that cosmic rays form half of all the radiant that strikes the Earth. In the universe as a whole, the amount of cosmic radiation is from thirty to three hundred times greater than all other forms of energy combined.

It is now commonly known that the universe consists of tremendous depths of empty space dotted by tiny specks, called galaxies; and that these galactic specks have scattered over them, just as sparsely, still smaller things called suns. The suns in turn have parasitic bodies near them called planets. Man lives on one of these.

On this microscopic scale the common concept that energy is what one uses in performing some physical task shrinks into complete insignificance. What makes up ninety-nine per cent of all the energy in the universe is radiant energy flying with the speed of light through space.

A small amount of this energy apparently comes from our Sun and its millions of fellows as they radiate light by the familiar process of losing part of their mass. In this way the Sun turns two hundred and fifty million tons of mass into light every minute. The theory that the process will eventually result in the "heat death" of the Sun is not as firmly held as it was formerly.

But there is still the greater part of the energy in the universe to explain. The report of Professor Millikan is only one of several that maintains cosmic rays form this part.

The explanation of the difficulty is that no such ready mechanism, like the burning up of the Sun, is at hand to be seized by scientists. However, three theories do exist as possible paths of approach. One is that the distant suns and stars may emit cosmic rays by a burning-up process exactly as our Sun emits light. Experience says no, but the conditions on these stars are practically unknown.

A second theory would have it that some of these distant bodies may contain elements of an unstable nature, like uranium, which breaks up of its own accord and emits the cosmic rays just as uranium and radium emit gamma rays.

A third theory maintains that there is a building-up process going on out in space whereby heavier elements are formed by the union of lighter ones. Such a linkage has been effected in isolated cases in laboratories, and when it does occur penetrating radiation is emitted. It may occur in space, also.