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Sheldon

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*** START OF THE PROJECT GUTENBERG EBOOK HOULIHAN'S EQUATION ***

Every writer must seek his own Flowery Kingdom in imagination's wide demesne, and if that search can begin and end on Earth his problem has been greatly simplified. In post-war Japan Walt Sheldon has found not only serenity, but complete freedom to write undisturbed about the things he treasures most. A one-time Air Force officer, he has turned to fantasy in his lighter moments, to bring us such brightly sparkling little gems as this.

houlihan's equation

by ... Walt Sheldon

The tiny spaceship had been built for a journey to a star. But its small, mischievous pilots had a rendezvous with destiny—on Earth.

I MUST admit that at first I wasn't sure I was hearing those noises. It was in a park near the nuclear propulsion center—a cool, green spot, with the leaves all telling each other to hush, be quiet, and the soft breeze stirring them up again. I had known precisely such a secluded little green sanctuary just over the hill from Mr. Riordan's farm when I was a boy.

Now it was a place I came to when I had a problem to thrash out. That morning I had been trying to work out an equation to give the coefficient of discharge for the matter in combustion. You may call it gas, if you wish, for we treated it like gas at the center for convenience—as it came from the rocket tubes in our engine.

Without this coefficient to give us control, we would have lacked a workable equation when we set about putting the first moon rocket around those extraordinary engines of ours, which were still in the undeveloped blueprint stage.

I see I shall have to explain this, although I had hoped to get right along with my story. When you start from scratch, matter discharged from any orifice has a velocity directly proportional to the square root of the pressure-head driving it. But when you actually put things together, contractions or expansions in the gas, surface roughness and other factors make the velocity a bit smaller.

At the terrible discharge speed of nuclear explosion—which is what the drive amounts to despite the fact that it is simply water in which nuclear salts have been previously dissolved—this small factor makes quite a difference. I had to figure everything into it—diameter of the nozzle, sharpness of the edge, the velocity of approach to the point of discharge, atomic weight and structure— Oh, there is so much of this that if you're not a nuclear engineer yourself it's certain to weary you.

Perhaps you had better take my word for it that without this equation—correctly stated, mind you—mankind would be well advised not to make a first trip to the moon. And all this talk of coefficients and equations sits strangely, you might say, upon the tongue of a man named Kevin Francis Houlihan. But I am, after all, a scientist. If I had not been a specialist in my field I would hardly have found myself engaged in vital research at the center.

Anyway, I heard these little noises in the park. They sounded like small working sounds, blending in eerily mysterious fashion with a chorus of small voices. I thought at first it might be children at play, but then at the time I was a bit absent-minded. I tiptoed to the edge of the trees, not

wanting to deprive any small scalawags of their pleasure, and peered out between the branches. And what do you suppose I saw? Not children, but a group of little people, hard at work.

There was a leader, an older one with a crank face. He was beating the air with his arms and piping: "Over here, now! All right, bring those electrical connections over here—and see you're not slow as treacle about it!"

There were perhaps fifty of the little people. I was more than startled by it, too. I had not seen little people in—oh, close to thirty years. I had seen them first as a boy of eight, and then, very briefly again, on my tenth birthday. And I had become convinced they could *never* be seen here in America. I had never seen them so busy, either. They were building something in the middle of the glade. It was long and shiny and upright and a little over five feet in height.

"Come along now, people!" said this crotchety one, looking straight at me. "Stop starin' and get to work! You'll not be needin' to mind that man standin' there! You know he can't see nor hear us!"

Oh, it was good to hear the rich old tongue again. I smiled, and the foreman of the leprechauns—if that's what he was—saw me smile and became stiff and alert for a moment, as though suspecting that perhaps I actually could see him. Then he shrugged and turned away, clearly deeming such a thing impossible.

I said, "Just a minute, friend, and I'll beg your pardon. It so happens I *can* see you."

He whirled to face me again, staring open-mouthed. Then he said, "What? What's that, now?"

"I can see you," I said.

"Ohhh!" he said and put his palms to his cheekbones. "Saints be with us! He's a believer! Run everybody—run for your lives!"

And they all began running, in as many directions as there were little souls. They began to scurry behind the trees and bushes, and a sloping embankment nearby.

"No, wait!" I said. "Don't go away! I'll not be hurting you!"

They continued to scurry.

I knew what it was they feared. "I don't intend catching one of you!" I said. "Come back, you daft little creatures!"

But the glade was silent, and they had all disappeared. They thought I wanted their crock of gold, of course. I'd be entitled to it if I could catch one and keep him. Or so the legends affirmed, though I've wondered often about the truth of them. But I was after no gold. I only wanted to hear the music of an Irish tongue. I was lonely here in America, even if I had latched on to a fine job of work for almost shamefully generous pay. You see, in a place as full of science as the nuclear propulsion center there is not much time for the old things. I very much wanted to talk to the little people.

I walked over to the center of the glade where the curious shiny object was standing. It was as smooth as glass and shaped like a huge cigar. There were a pair of triangular fins down at the bottom, and stubby wings amidships. Of course it was a spaceship, or a miniature replica of one. I looked at it more closely. Everything seemed almost miraculously complete and workable.

I shook my head in wonder, then stepped back from the spaceship and looked about the glade. I knew they were all hiding nearby, watching me apprehensively. I lifted my head to them.

"Listen to me now, little people!" I called out. "My name's Houlihan of the Roscommon Houlihans. I am descended from King Niall himself—or so at least my father used to say! Come on out now, and pass the time o' day!"

Then I waited, but they didn't answer. The little people always had been shy. Yet without reaching a decision in so many words I knew suddenly that I *had* to talk to them. I'd come to the glen to work out a knotty problem, and I was up against a blank wall. Simply because I was so lonely that my mind had become clogged.

I knew that if I could just once hear the old tongue again, and talk about the old things, I might be able to think the problem through to a satisfactory conclusion.

So I stepped back to the tiny spaceship, and this time I struck it a resounding blow with my fist. "Hear me now, little people! If you don't show yourselves and come out and talk to me, I'll wreck this spaceship from stem to stern!"

I heard only the leaves rustling softly.

"Do you understand? I'll give you until I count three to make an appearance! One!"

The glade remained deathly silent.

"Two!"

I thought I heard a stirring somewhere, as if a small, brittle twig had snapped in the underbrush.

"Three!"

And with that the little people suddenly appeared.

The leader—he seemed more wizened and bent than before—approached me slowly and warily as I stood there. The others all followed at a safe distance. I smiled to reassure them and then waved my arm in a friendly gesture of greeting.

"Good morning," I said.

"Good morning," the foreman said with some caution. "My name is Keech."

"And mine's Houlihan, as I've told you. Are you convinced now that I have no intention of doing you any injury?"

"Mr. Houlihan," said Keech, drawing a kind of peppered dignity up about himself, "in such matters I am never fully convinced. After living for many centuries I am all too acutely aware of the perversity of human nature."

"Yes," I said. "Well, as you will quickly see, all I want to do is talk." I nodded as I spoke, and sat down cross-legged upon the grass.

"Any Irishman wants to talk, Mr. Houlihan."

"And often that's *all* he wants," I said. "Sit down with me now, and stop staring as if I were a snake returned to the Island."

He shook his head and remained standing. "Have your say, Mr. Houlihan. And afterward we'll appreciate it if you'll go away and leave us to our work."

"Well, now, your work," I said, and glanced at the spaceship. "That's exactly what's got me curious."

The others had edged in a bit now and were standing in a circle, intently staring at me. I took out my pipe. "Why," I asked, "would a group of little people be building a spaceship here in America—out in this lonely place?"

Keech stared back without much expression, and said, "I've been wondering how you guessed it was a spaceship. I was surprised enough when you told me you could see us but not overwhelmingly so. I've run into believers before who could see the little people. It happens every so often, though not as frequently as it did a century ago. But knowing a spaceship at first glance! Well, I must confess that *does* astonish me."

"And why wouldn't I know a spaceship when I see one?" I said. "It just so happens I'm a doctor of science."

"A doctor of science, now," said Keech.

"Invited by the American government to work on the first moon rocket here at the nuclear propulsion center. Since it's no secret I can advise you of it."

"A scientist, is it," said Keech. "Well, now, that's very interesting."

"I'll make no apologies for it," I said.

"Oh, there's no need for apology," said Keech. "Though in truth we prefer poets to scientists. But it has just now crossed my mind, Mr. Houlihan that you, being a scientist, might be of help to us."

"How?" I asked.

"Well, I might try starting at the beginning," he replied.

"You might," I said. "A man usually does."

Keech took out his own pipe—a clay dudeen—and looked hopeful. I gave him a pinch of tobacco from my pouch. "Well, now," he said, "first of all you're no doubt surprised to find us here in America."

"I am surprised from time to time to find myself here," I said. "But continue."

"We had to come here," said Keech, "to learn how to make a spaceship."

"A spaceship, now," I said, unconsciously adopting some of the old manner.

"Leprechauns are not really mechanically inclined," said Keech. "Their major passions are music and laughter and mischief, as anyone knows."

"Myself included," I agreed. "Then why do you need a spaceship?"

"Well, if I may use an old expression, we've had a feelin' lately that we're not long for this world. Or let me put it this way. We feel the world isn't long for itself."

I scratched my cheek. "How would a man unravel a statement such as that?"

"It's very simple. With all the super weapons you mortals have developed, there's the distinct possibility you might be blowin' us all up in the process of destroying yourselves."

"There *is* that possibility," I said.

"Well, then, as I say," said Keech, "the little people have decided to leave the planet in a spaceship. Which we're buildin' here and now. We've spied upon you and learned how to do it. Well—almost how to do it. We haven't learned yet how to control the power—"

"Hold on, now," I said. "Leaving the planet, you say. And where would you be going?"

"There's another committee working on that. 'Tis not our concern. I was inclined to suggest the constellation Orion, which sounds as though it has a good Irish name, but I was hooted down. Be that as it may, my own job was to go into your nuclear center, learn how to make the ship, and proceed with its construction. Naturally, we didn't understand all of your high-flyin' science, but some of our people are pretty clever at gettin' up replicas of things."

"You mean you've been spying on us at the center all this time? Do you know, we often had the feeling we were being watched, but we thought it was by the Russians. There's one thing which puzzles me, though. If you've been constantly around us—and I'm still able to see the little people—why did I never see you before?"

"It may be we never crossed your path. It may be you can only see us when you're thinkin' of us, and of course truly believin' in us. I don't know—'tis a thing of the mind, and not important at the moment. What's important is for us to get our first ship to workin' properly and then we'll be on our way."

"You're determined to go."

"Truly we are, Mr. Houlihan. Now—to business. Just during these last few minutes a certain matter has crossed my mind. That's why I'm wastin' all this time with you, sir. You say you are a scientist."

"A nuclear engineer."

"Well, then, it may be that you can help us—now that you know we're here."

"Help you?"

"The power control, Mr. Houlihan. As I understand it, 'tis necessary to know at any instant exactly how much thrust is bein' delivered through the little holes in back. And on paper it looks simple enough—the square of somethin' or other. I've got the figures jotted in a book when I need 'em. But when you get to doin' it it doesn't come out exactly as it does on paper."

"You're referring to the necessity for a coefficient of discharge."

"Whatever it might be named," said Keech, shrugging. "'Tis the one thing we lack. I suppose eventually you people will be gettin' around to it. But meanwhile we need it right now, if we're to make our ship move."

"And you want me to help you with this?"

"That is exactly what crossed my mind."

I nodded and looked grave and kneaded my chin for a moment softly. "Well, now, Keech," I said finally, "why should I help you?"

"Ha!" said Keech, grinning, but not with humor, "the avarice of humans! I knew it! Well, Mr. Houlihan, I'll give you reason enough. The pot o' gold, Mr. Houlihan!"

"The one at the end of the rainbow?"

"It's not at the end of the rainbow. That's a grandmother's tale. Nor is it actually in an earthen crock. But there's gold, all right, enough to make you rich for the rest of your life. And I'll make you a proposition."

"Go ahead."

"We'll not be needin' gold where we're goin'. It's yours if you show us how to make our ship work."

"Well, now, that's quite an offer," I said. Keech had the goodness to be quiet while I sat and thought for a while. My pipe had gone out and I lit it again. I finally said, "Let's have a look at your ship's drive and see what we can see."

"You accept the proposition then?"

"Let's have a look," I said, and that was all.

Well, we had a look, and then several looks, and before the morning was out we had half the spaceship apart, and were deep in argument about the whole project.

It was a most fascinating session. I had often wished for a true working model at the center, but no allowance had been inserted in the budget for it. Keech brought me paper and pencil and I talked with the aid of diagrams, as engineers are wont to do. Although the pencils were small and I had to hold them between thumb and forefinger, as you would a needle, I was able to make many sensible observations and even a few innovations.

I came back again the next day—and every day for the following two weeks. It rained several times, but Keech and his people made a canopy of boughs and leaves and I was comfortable enough. Every once in a while someone from the town or the center itself would pass by, and stop to watch me. But of course they wouldn't see the leprechauns or anything the leprechauns had made, not being believers.

I would halt work, pass the time of day, and then, in subtle fashion, send the intruder on his way. Keech and the little people just stood by and grinned all the while.

At the end of sixteen days I had the entire problem all but whipped. It is not difficult to understand why. The working model and the fact that the small people with their quick eyes and clever fingers could spot all sorts of minute shortcomings was a great help. And I was hearing the old tongue and talking of the old things every day, and truly that went far to take the clutter out of my mind. I was no longer so lonely that I couldn't think properly.

On the sixteenth day I covered a piece of paper with tiny mathematical symbols and handed it to Keech. "Here is your equation," I said. "It will enable you to know your thrust at any given moment, under any circumstances, in or out of gravity, and under all conditions of friction and combustion."

"Thank you, Mr. Houlihan," said Keech. All his people had gathered in a loose circle, as though attending a rite. They were all looking at me quietly.

"Mr. Houlihan," said Keech, "you will not be forgotten by the leprechauns. If we ever meet again, upon another world perchance, you'll find our friendship always eager and ready."

"Thank you," I said.

"And now, Mr. Houlihan," said Keech, "I'll see that a quantity of gold is delivered to your rooms tonight, and so keep my part of the bargain."

"I'll not be needing the gold," I said.

Keech's eyebrows popped upward. "What's this now?"

"I'll not be needing it," I repeated. "I don't feel it would be right to take it for a service of this sort."

"Well," said Keech in surprise, and in some awe, too, "well, now, musha Lord help us! 'Tis the first time I ever heard such a speech from a mortal." He turned to his people. "We'll have three cheers now, do you hear, for Mr. Houlihan—friend of the little people as long as he shall live!"

And they cheered. And little tears crept into the corners of some of their turned-up eyes.

We shook hands, all of us, and I left.

I walked through the park, and back to the nuclear propulsion center. It was another cool, green morning with the leaves making only soft noises as the breezes came along. It smelled exactly like a wood I had known in Roscommon.

And I lit my pipe and smoked it slowly and chuckled to myself at how I had gotten the best of the little people. Surely it was not every mortal who could accomplish that. I had given them the wrong equation, of course. They would never get their spaceship to work now, and later, if they tried to spy out the right information I would take special measures to prevent it, for I had the advantage of being able to see them.

As for our own rocket ship, it should be well on its way by next St. Patrick's Day. For I had indeed determined the true coefficient of discharge, which I never could have done so quickly without those sessions in the glade with Keech and his working model.

It would go down in scientific literature now, I suppose, as Houlihan's Equation, and that was honor and glory enough for me. I could do without Keech's pot of gold, though it would have been pleasant to be truly rich for a change.

There was no sense in cheating him out of the gold to boot, for leprechauns are most clever in matters of this sort and he would have had it back soon enough—or else made it a burden in some way.

Indeed, I had done a piece of work greatly to my advantage, and also to the advantage of humankind, and when a man can do the first and include the second as a fortunate byproduct it is a most happy accident.

For if I had shown the little people how to make a spaceship they would have left our world. And this world, as long as it lasts—what would it be in that event? I ask you now, wouldn't we be even *more* likely to blow ourselves to Kingdom Come without the little people here for us to believe in every now and then?

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