

THRILLING WONDER STORIES

Vol. XXIX, No. 1

A THRILLING PUBLICATION

Fall, 1946



A Complete Novel

THE MULTILLIONTH CHANCE

By JOHN RUSSELL FEARN

Physicist Grant Mayson re-creates Iana, the wonder girl of long ago, out of scattered atoms—but between them stands the memory of Anrax, long-dead master of science! 9

Two Complete Novelets

CALL HIM DEMON.....	Keith Hammond	46
<i>Deep in his fourth dimensional lair crouches the hungry monster, while only a band of children guards helpless adult victims!</i>		
POCKET UNIVERSES.....	Murray Leinster	70
<i>When a Latin-American tyrant visits New York, Luis Santos perfects a machine that can eliminate space—and exacts vengeance!</i>		

Short Stories

THE GOOD EGG.....	Ross Rocklynne	37
<i>Square Root, the little imp from space, does some fast figuring</i>		
NEVER THE TWAIN SHALL MEET.....	Brett Sterling	60
<i>John Farrel keeps his tryst with Yileen, whose love means death</i>		
THE LITTLE THINGS.....	Henry Kuttner	85
<i>Dave Tenning, a born rebel, felt he did not belong in this Futureworld</i>		
TUBBY—MASTER OF THE ATOM.....	Ray Cummings	92
<i>An atomic beauty of a distant era gives Tubby the eye</i>		

Special Features

THE READER SPEAKS.....	Sergeant Saturn	6
THE STORY BEHIND THE STORY.....	A Department	111

Cover Painting by Earle Bergey—Illustrating "Call Him Demon"

Published every other month by STANDARD MAGAZINES, INC., 10 East 40th Street, New York 16, N. Y. N. L. Pines, President. Copyright, 1946, by Standard Magazines, Inc. Subscription (12 issues) \$1.80. Single copies, 15c. Foreign and Canadian postage extra. Entered as second-class matter May 21, 1936, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Names of all characters used in stories and semi-fiction articles are fictitious. If the name of any living person or existing institution is used, it is a coincidence.

October, 1946, issue

PRINTED IN THE U. S. A.

Read Our Companion Science Fiction Magazine—STARTLING STORIES

POCKET UNIVERSES

By MURRAY LEINSTER

When Latin-American tyrant José Gutierrez visits New York, political fugitive Luis Santos perfects a machine that can eliminate space—and exacts fearsome, fantastic vengeance!

CHAPTER I

Fantastic Device



WITH Santos looking at me with a queer fixed grin on his face I did as he had asked me to. He'd said something about a diamagnetic device he wanted me to try, so I picked up a screw-driver from the floor—Santos was always hopelessly untidy in his laboratory—and turned on the switch he'd indicated. I meant, then, to see what happened when I moved the screw-driver nearer the copper-crystal-wire contraption he had on his workbench near the window. But I didn't. Because the instant I turned on the switch, the contraption vanished.

My mouth dropped open.

"Open the switch, *amigo mio*," Santos said softly.

I opened it—and the contraption was back on the bench. It was a weird-looking thing, that instrument—a copper bar center, and crystal rods, and wire wrapped around it in a distinctly lunatic pattern. It looked like Rube Goldberg might have designed it. But it was certainly real and certainly solid. I reached out my hand to touch it. It was there, all right!

Santos spoke again, in a dry voice.

"I think that you saw the same thing I did. Yes. So now I am not insane. Or rather, I know that we are all crazy together to think that we know anything! Let us go and have lunch. I have achieved a great triumph."

"Hold on!" I said violently. "Let me do that again."

I threw the switch. The copper-crystal-wire device ceased to be. Now that I was

not taken altogether by surprise, though, I could see that where it had been wasn't altogether normal. There was an oddity about the space it had occupied. It wasn't blurred, exactly, and it wasn't exactly distorted. But it hurt my eyes to look through it.

I gulped, and turned off the switch a second time. The object was solidly back, just where it had been. Santos had one of his queer looking arc lights focused on the table. Its rays made everything visible. The device was there, all right!

"W—wait a minute!" I said, shaken. "You can't do this to me! What is it, Santos? What the devil happened?"

"It disappears," said Santos. He was a queer, dried-up little runt of a Latin-American, and I liked him very much. "It temporarily ceases to be. I am as much disturbed as you are."

I THREW the switch a third time. The blasted thing vanished. I reached toward it and stopped, cautiously.

"Is it dangerous to touch when it's turned on?"

"Try," said Santos. He shrugged until his shoulders seemed almost to go up to his ears. "I have tried. I cannot do it."

The peculiar grin came on his face again. It seemed to be compounded of amazement, and wonder, and pride, and a look of startled but very deep satisfaction.

I reached for the thing I knew must be there. It was invisible, of course—which was fantastic enough in itself—but there has been a lot of theorizing about invisibility. If one can bend light-rays around an object, it will become invisible.

There are conditions of refraction in which an opaque object cannot be seen. And you can print two dots side by side on a sheet of paper, and hold the paper a certain distance from your eyes and one of them disappears—until you move the paper. Invisibility is hard enough to imagine, but you can con-

An Astonishing Novelet

Suddenly I was close to fainting because in the place where the contrivance had been there was nothing and there was a space between my wrist and my forearm



cede that it might be brought about—just possibly could be managed. So I reached for that copper-crystal-wire contrivance.

My hand went through the place where it had been. I felt nothing. I reached around it and swept my arm toward myself, to be sure of including it in the sweep. And then I came very close to fainting. Because—this is going to be hard to take—I didn't feel anything in the least peculiar, but suddenly my hand was away over to the left, a good foot and a half farther from my elbow than was customary, and there was a space between my wrist and forearm.

I made what must have been a strangled, squawking noise and stumbled backward. And there was my hand on the end of my arm, just as it always has been. But I felt chilly all over and there was cold sweat running down my face.

Luis Santos looked at me with the same queer gleam in his eyes.

"*Precisamente*," he said, nodding. "I have felt all of this. It is extremely upsetting. Think how I felt when I found out that I had made it!" He stood up. "I think we had better go to lunch. A cup of coffee would be good for our nerves."

But I turned the switch off, and the thing was back, and I turned it on and it wasn't there, and I felt that queer stinging effect in my eyes. But I didn't try to touch it again.

"Listen, Santos!" I said shakily. "This is too screwey. What is it?"

He shrugged again, and his face had the same queer startled expression on it.

"I designed a diamagnet," he told me. "There is no such thing. There cannot be such a thing. But I evolved a theory which said that if I did such-and-such things, a diamagnet would result. I checked the theory, step by step. Every step was sound. So I made it. If it proved to be a diamagnet, I reasoned, I would have proved certain accepted principles of physics to be false."

"On the other hand, if it did not prove to be a diamagnet, certain other accepted principles would prove to be false. And I was shocked to observe that both are true."

"A diamagnet cannot exist. But this device should be one. Both theories are correct. The device without energy is not a diamagnet, so it can exist. When it is, it becomes a diamagnet, which cannot exist, so it ceases to be. Then when the switch is thrown off it is no longer a diamagnet, so it can exist again. It is very upsetting and I am

much scrambled in my brains."

He stood up.

"I think that I need to talk of something else," he said, and now I realized that Santos was as much shaken as I was. "I am of a very select company, *amigo*. There was Galvani, and there was Faraday, and there have been a few others. Now I am one of them, because I have found a new principle of science. But it is not a comfortable discovery, to learn that two principles can flatly contradict each other and both be right."

I turned the switch off and on, and off and on. The complicated-seeming gadget was alternately present and solid and real, and completely absent and non-existent. It looked like a conjuring trick. But I remembered my hand floating in thin air, a good foot and a half farther from my elbow than it should have been. And I shivered.

THEN Luis Santos took my arm. He was a little man, as I said—barely above my shoulder. He was lean, and his face was wrinkled, and he had a nasty scar which began just above his collar and went down his neck out of sight.

He led me firmly toward the door and lunch. I went along almost dazedly. It may sound commonplace enough to hear about but, when something like that actually happens to you, it sets butterflies to crawling in your stomach.

I kept looking at my hand, which had apparently been separated from my body. I moved it feverishly, reassuring myself that it was still there. I began to try to explain to myself that it wasn't so—that it hadn't happened.

I wish it hadn't.

Thinking back, it still doesn't make sense. Santos was a Hondaguan, from the little Republic of Honduras down below the Equator. He was Latin-American—pure Spanish as far as I could tell—and you don't expect Latin-Americans, somehow, to be scientists.

You think of them and of revolutions and politicians, and if you know a few of them you think of poetry and literary effusions and highly intellectual and not very meaty talk. But science, no. Facts seem to hamper most of them.

Even Santos had seemed less than constructive. I knew his work, of course. He seemed to take a fiendish delight in taking some new and solemnly announced discovery and repeating all the described experi-

ments with meticulous care, and then publishing a painstaking account of the results—which demolished the discovery. People cursed him. But if he said that a certain experiment, conducted in precisely this fashion, produced exactly that result—it was so. He had that much reputation, at least.

For the rest, without making any mystery about himself he was more or less obscure. He'd come to the United States, graduated from a very good technical school here, and gone back to Hondagua. Ten years later he'd turned up in New York, wrinkled and already dried up, and had set to work painstakingly to demolish the work of other men. Until now he'd never announced any original work of his own. What he'd done in the ten years he was back home, I didn't know. He never spoke of it.

He led me down to the dining room in the Institute, and we took seats at a table facing each other. We both looked as if we'd seen a ghost.

"First, we lunch," said Santos firmly. "We think about something else. I am afraid of that thing. So we will talk about other matters until we have had our coffee."

But I wasn't much good at talking, just then. I had seen a solid substance cease to be, and I had seen a quite impossible condition of space which hurt my eyes, and I'd passed my hand through it and my hand was separated by a good foot and a half from the rest of my arm, and seemed not to have noticed its own aberration. I looked at my fingers and moved them painstakingly. Of course nothing had happened to them but the impossible, but I couldn't talk.

"The situation seems to call for desperate measures," said Santos, smiling faintly. "Did I ever tell you about my home in Hondagua?"

It was the only subject outside of what I'd seen that I could really have listened to, because as I said, he was in a mild way a mystery. I knew he didn't like to talk about his home. But now he did. He knew we both needed to stop thinking of that preposterous gadget of copper and glass and wire up on his work-table. So since I couldn't help him, he helped me.

He gave me a picture of his home in Hondagua with crisp words that painted drooping palm-trees and a sky that was too blue for anybody to believe, and a sea that lapped against a shore of white sand. There was hot sunshine, and lazy comfort, and an infinitude of reasons for not doing anything

in particular and being quite happy about it. There was a white-walled, sprawling *hacienda*, with jasmine growing all about it, and barefooted Indian servants, and a roofed-over well.

"The water from that well, *amigo*, does not taste like water from a hydrant," said Santos parenthetically. "It is much superior. And there was a smiling dark-haired girl. . . ."

Santos stopped short.

After a moment he went on again. He was doing it for me, because I was not in a very good mental state and he wanted to distract me. You often read of fantastic scientific devices, in fiction. But when you actually see one, it hits hard!

CHAPTER II

Elastic Space

SANTOS talked about his horses, and his dogs, and the lazy drives into the sleepy, lazy town of Niente, and of the house in the capital city of Hondagua which sprawled over half a city block and had been added to by his forefathers until nobody on earth could ever have made a plan of it. And the ancient, creaking, unbelievably elaborate barouche in which it had been the custom of the ladies of his family to pay solemn, official calls for uncounted years. It was ridiculous, that barouche. Why, once the dark-haired girl—

He stopped, and sweated. Then he managed to smile.

"I think you are thinking of something else now, eh?" he asked. "I shall look at the paper for a moment."

Table service in the Institute restaurant is not swift. It is a tradition, together with the stodgy dinginess of the corridors. We waited to have our coffee brought us, and he picked up the newspaper that had been laid on our table. He began to glance at the headlines. His hands shook a little. He wasn't thinking of the paper. But his eyes must have taken in some of the print, because suddenly he trembled violently.

He laid down the paper. He was very pale indeed. He saw my expression. He smiled at me, but his eyes were very strange.

"I think we are both cured of thinking of that thing upstairs," he said quietly. "I see

in today's newspaper that the *Persidente* of Hondagua is to come to this city on a good-will visit to the United States. That would cure me of thinking of anything!"

He picked up his coffee-cup. He hadn't noticed its arrival. He drank some of it, but some of it spilled, and his face looked thin and pale and desperate.

"Now I shall go back to thinking of my diamagnet with relief," he observed remotely. "It is much easier to bear."

But suddenly, as if he could not help it, he told me. His voice was savagely bitter. It hurt to hear him.

Hondagua was one of those nations which paid strictly lip-service to democracy. Its president—José Manuel Guttierrez—had been in office for eighteen years. During those eighteen years there had not been the pretense of an election. There had not been the pretense of justice in the courts or honesty in its officials. Worse, there had not been a pretense of decency on the part of the absolute and arbitrary *presidente*.

The dark-haired girl had been Santos' wife. She had attracted the attention of the saddle-colored Guttierrez. He'd blandly invited her to the Presidential palace. She did not go. She disappeared—kidnapped by members of the presidential guard.

"I was away, hunting," said Santos, thin-lipped. "When I heard, I went mad. I went to the palace with a revolver, and I was shot down on the ground that I had attempted to assassinate the *Presidente*. That was my intention, but I had no opportunity. I was left for dead, but I did not die." Then he added: "Unfortunately!"

He paused for a moment.

"My wife, also, was dead," he said evenly. "When I recovered, I began a revolution. There were enough of people who were as desperate as I! For three months we managed to keep the field. We did some damage, to people who undoubtedly hated Guttierrez as much as we did. But it was quite hopeless. We became hunted fugitives. Once they caught forty of my men alive, promising them their lives if they surrendered. I myself heard the volleys by which they were executed. I was hiding in a *peon's* house not half a mile away. Ultimately, just twelve of us got out of the country."

Then he spread out his hands, smiling bitterly.

"I planned to go back some day and strangle that Guttierrez with my own hands.

But already a thousand men had died in my revolt. And—my men did not always behave like Sunday-school scholars. If I could have been sure of killing him—that would have been one thing. But to cause the deaths of other men, and perhaps the shame of other women, to revenge the injuries I had received, that I could not manage. And as a result—" his eyes showed that he sneered at himself "—I have become a great man! I have made a diamagnet, *amigo mio*, I have made a thing which cannot exist and which ceases to be the instant its existence begins, while Guttierrez here visits as the president of a friendly nation!"

IT WAS now my turn to try to draw his mind away from what he was thinking about.

"You'll probably be sorry you told me that," I said bluntly. "So I'm going to forget it unless you mention it again. But that diamagnet isn't the trifle you think. If you'll go up to your lab again, I think we'll find out that it is important, after all, and well worth a man's life to find out. You completed it as recently as you say?"

"Half an hour before you came in," he told me without interest, "I turned it on for the first time, then. Very well. Let us go."

I went back to his laboratory with him. I talked enthusiastically of unstated suspicions I began to have of its capabilities and significance. I really got him to think of it again.

And again I wish I hadn't.

When we got to the lab, the first question, of course, was what became of the contraption when it was turned on and vanished.

We took a wooden rod and poked into the space it had occupied. There wasn't anything there but an extraordinary optical effect that told you something was wrong when you looked at it. The rod came out—surprisingly far—on the other side. Then I drew the rod bodily through the queer appearance, holding its two ends. It was the same thing I'd done with my arm.

The rod was about a yard long. I pulled it to me, and suddenly it pushed my hands apart. I hate to admit it, but the hair stood up on top of my head, because the rod was solid, and it was expanding violently.

Then I saw that there was an empty space in the middle. It looked as if there were two rods. But the two ends felt as if there were only one.

I continued to pull it toward me, and abruptly it shrank to its normal length and the open space in the middle vanished, and it was a single piece of wood again.

Santos fiddled with the scar on his neck. Suddenly he nodded his head.

"I think that that explains everything," he said coolly. "Look, *amigo*!"

He put the rod back through the queer optical condition. As seen from the side, the rod was a foot and a half longer than it had been, and there was an empty space a foot and a half wide in the middle. But when Santos pushed the rod to and fro the gap between the two sections remained the same, and in the same place, but the relative lengths of the two sections changed. Now there was one inch in the piece on the left-hand side, and now a foot, and now two, and now one inch again.

And then Santos pulled it slowly, and that one inch shrank to half and a quarter and a bare shred. . . . And he had the end of the stick out of the hazy place, a foot and a half from where it had been the fraction of a second before.

"Ah, yes!" said Santos. "And this will prove all of it."

He spread out a newspaper two sheets wide, and lowered it over the appearance. A hole appeared in the middle of the newspaper. It was not torn. It simply appeared, and the paper wrinkled and buckled on every side to make up for the hole. He raised the paper and the hole closed up flawlessly. He lowered it until an almost circular hole a foot and a half in diameter was in the middle.

"Turn off the switch," he said.

I did. There was one of the sharpest, nastiest snapping sounds you ever heard, and that ungodly copper-and-glass contrivance was sticking through the newspaper and there was a cloud of fine paper-dust sifting through the air.

"*Pero si*," said Santos calmly. "That is it. But of course. How could it be otherwise?"

He took out a cigarette and lighted it. He did not show any triumph or any pleasure in having found an explanation.

"You are right, *amigo mio*," he said instead, in detached tones. "This is important. It is worth the Nobel Prize, at least. I have forgotten who remarked that this is a mad world, but it is so. Now I understand why I was afraid of this thing. It is the sort of thing to make one's hair prickle."

HE GRINNED at me mirthlessly.

"Perhaps I will become an eminent Honduran scientist, now. Gutiérrez may give me the Order of Sansovino, First Class. He may invite me home. And he would express great grief if a deplorable accident caused my death within the hour of my landing. It is amusing."

But he did not look as if he were amused.

"What the devil?" I demanded. "What happened then?"

He blew a cloud of smoke.

"The theory is simple. Two things cannot occupy the same space at the same time. They tried to. We speak of paramagnetic and diamagnetic substances as if there were magnetic and anti-magnetic fields of force. But we also speak of positive and negative electricity. Yet we know that there is no positive electricity, there is only a deficiency of electrons which are negative charges. So there is no anti-magnetism in space as we know it, but only a deficiency of magnetrons in certain substances like copper and bismuth."

"But you said—"

"That I made a diamagnet," said Santos. "And so I did. But it cannot exist in our space. Therefore, in order to exist, it must create a space which is different from ours, in which it can exist. And this it does. That much is clear, I think, from the experiments we made only now."

"Hold hard!" I protested. "You're suggesting that the thing goes into a sort of fourth dimension?"

"No," said Santos with an abrupt flagging of interest. "Into a closed universe. A tiny pocket-sized universe of its own. Exactly the same thing, say, as an atom so heavy that it collapses space upon itself. There would be no way to detect such an atom. But we can detect this thing, because the space which ceases to be is so large."

He sat down and fixed his eyes somberly on the opposite wall. I blinked. Then it began to make sense. There was a long silence in the barren-looking room which was Santos' laboratory. But I need to see things, sometimes, before they are firmly in my head.

So I went over to the table where Santos wrote up his notes and picked up a rubber band and a paper-clip. It was a red rubber band, I remember.

I slipped the paper-clip on it and stretched it between the thumb and forefinger of my

hand. Then—feeling very foolish—I made two ink-spots on the rubber. They were a couple of inches from each other, with the paper-clip in between.

The paper-clip represented the copper-glass-wire contrivance, and the ink-spots two arbitrary places on the table. Then I twisted the paper-clip so that it wound up the rubber band about itself. It stretched. The ink-spots approached each other. Presently they touched. Then I let go the paper-clip and everything slipped back. They were far apart again, with the clip in between.

That was it, exactly. Einstein has proved that space is elastic. The rubber band was also elastic. When the paper-clip—representing the weird object on the work-table—wrapped the rubber band which represented space about itself, why, presently there wasn't any rubber band or space between the two dots. But when I released it, everything went back to normal and there was space and a metal object between them.

The diamagnet wrapped space about itself. It absorbed space. The reason one's eyes hurt when looking at the place where space had been absorbed was that they tried to focus impossibly. Objects behind the vanished gadget were nearer than objects which weren't behind it. They hadn't moved, of course. But a certain amount of space—of distance—had been removed.

"This," I said presently, "means more than I pretended to think, Santos."

He shrugged. For years he had kept so busy that he could not remember his home in Hondagua, or his wife, or the tragedy which had made revolution and bloodshed when he fought bitterly for vengeance. Perhaps, especially, he had kept busy so he could not remember the failure of his vengeance. But the coming of the Presidente of Hondagua to New York upon a good-will visit—the one man in the world whose life was forfeit to him!

I FOUND a couple of test-tube holders in the dusty wall cupboard. I put them a couple of feet apart, with Santos' gadget in between. I threw the switch and the thing disappeared.

I got behind one of the holders and looked at the other one. It was only six inches away. A foot and a half of the distance between them had disappeared.

I moved to the side of the table—and they were two feet apart. But in a straight line

from one to the other, there was only six inches. Space had vanished between them, but not between anything else. The space between them had been rolled up and wrapped around Santos' invention.

I turned the switch off and everything was normal again. But I began to tremble.

"I say, Santos," I said quietly. "Does it occur to you that you are the richest man in the world? This thing is going to make railroads and bridges and steamer-lines look rather silly. It's going to make mines obsolete, and I suspect it will do things to the law of the conservation of energy. If you can make this confounded thing create its own pocket universes in reasonably obliging shapes, you're going to remake civilization!"

As I have said, he was rather small and quite dried-up and not at all impressive to look at. He looked pathetic, with his face all pinched with hatred of the man who was to be an honored guest of the nation and the city. He tried to listen to me. I think he really did. But all he could do was manage an artificial, apologetic smile.

"Amigo mio," he said listlessly, "I cannot think but so much of this matter now. Later, perhaps. At the moment it is necessary for me to consult with some of my friends. Not about this, but Gutierrez, now that he is away from his palace and his guards."

There wasn't even any excitement in his tone. There was hatred in it, though—hatred so terrible and so long-continued that it wasn't even emotional but was as natural and as inevitable and as implacable as the need to breathe. I didn't really see that then. I sympathized with him abstractedly, but my brain was on fire with the possibilities I saw in closed universes like the one his diamagnet would create.

I made him listen to me. I explained, urgently, some of the possibilities I could see. He might perhaps never have thought of any actual application of his discovery. I saw what it could do in a practical way. I made him see it too.

Now I wish I hadn't done that, either.

CHAPTER III

A Larger and Better Machine

NEXT morning the news headlines had nothing about the President of Honda-

gua. It hadn't been an important story, anyhow. It had been printed somewhere down on the bottom of Page One, and it was there because Hondagua had rated a good many headlines during the war because of its consistently pro-Axis policy. It had to be dragged into breaking off relations with Germany, and it had been definitely half-hearted in ostensible efforts to clear the country of German spies. The news that its president was in the United States had a sardonic aspect that made it news for one edition.

I have a habit, though, of reading editorials. Perhaps because I deal in unarguable facts so much that I like opinions that are debatable. And there was an editorial in my paper on the visit of President Gutiérrez. It referred to a communication in its letters-to-the-editor column.

That letter was signed by a Spanish name I did not know. It was written with the polished irony of a Spanish-speaking intellectual, and it was purest dynamite. It made points which bit. It pointed out that Gutiérrez had seized power and suppressed all electoral privileges in Hondagua. It also mentioned that he had twelve times threatened war against the sister-republics around Hondagua. And then it added that the country was seething with revolt almost openly fostered by its neighbors for their own security.

The Presidente had left Hondagua—in fact had been able to leave it—only after elaborate negotiations with the surrounding countries and the elements opposing him. He had agreed to call elections and leave the country before they came off. His departure, in fact, had been in the nature of an abdication in the face of revolt and foreign war. He'd been allowed to get away simply to save the bloodshed he could have caused by resistance.

Newspaper articles in Havana, Bogota, and other Spanish-American cities were cited as verification. And then the letter pointed out that the private fortunes of many Axis leaders had been cached in Hondagua during the war, fortunes which those leaders would now never be able to claim.

It added that the baggage of the Presidente of Hondagua would, of course, be endowed with diplomatic immunity and passed through the customs without examination. Then it suggested delicately that the visit of the *Señor Don José Manuel Gutiérrez* was not so much a gesture of good-will between sovereign nations as the getaway of a bandit with all the loot he had been able to steal or

inherit from enemies of the United Nations.

The editorial comment on the letter was on a high plane of impartiality, but the visit of the *Presidente* smelled to high heaven immediately.

I didn't go into Santos' laboratory until late in the afternoon. It had occurred to me that, after all, the discovery was Santos' and I hadn't any right to butt in on it. Yet, I couldn't think of very much else.

If you could diminish the distance between two test-tube holders by a foot and a half without moving either of them, you ought to be able to do innumerable things that by the normal laws of nature were impossible. After all, that's what civilization is—tricking physics to one's own will.

But this was more important than the harnessing of steam! It was more important than the use of electricity! It would rate, in future ages, at least equal with the invention of the wheel or even of writing. I foresaw a world remade and even the conquest of the stars!

It was Santos' discovery and only his, but—I managed to leave him alone until late afternoon. Then I couldn't stay away any longer. On the way to the Institute, feeling very foolish, I stopped in a toy store and bought some marbles.

He seemed glad to see me. He even looked reproachful.

"You were so enthusiastic yesterday, *amigo mio*, that I looked for you earlier," he said gently. "I need your viewpoint; your ingenuity. I have a peculiar turn of mind. To me, this seems fascinating because of its possible effect upon the history of thought. To you it means effects upon the history of civilization. That viewpoint is important. I should have it."

THE gadget of the day before was no longer on the table, but there were two or three odd contrivances in its place and he was assembling something else.

It was a strange place for the future of humanity to be formed in, I thought. Laboratories in the Institute are not luxurious. This was cramped, and the walls needed painting, and it was definitely untidy. And of course Santos was not the stately figure the molders of civilization have always seemed to be. But—

"What have you done?" I asked feverishly. "I want to know if you can make those pocket universes of different shapes, or if they have

to be globular. Everything depends on that. Nearly everything, anyhow!"

He nodded toward the table. There was a cage-like thing which bore a definite family likeness to the apparatus that had almost driven me out of my mind the day before. This was about three inches in diameter and three feet long. Santos was working on something quite similar, but shorter and with a fair-sized empty space inside.

"That one," he told me, nodding at the three-foot object, "makes a cylindrical pocket universe. It is also a movable device. This morning I put a mouse in the space here—" he indicated the one he was working on—"and closed space about it. I released the little creature as a reward for surviving. I am making another change in it, but that is all I have done. I will show you the cylinder."

He put down the thing in his hands and went briskly to the work-table. He lifted the thing that looked rather like an over thick walking-cane made of lattice-work. There were thin glass rods included in it.

"See?" he said, well pleased. "I learned much from the original. I have been able to simplify. Now observe!"

He had a handle on it, with a switch. A wire ran to a power-socket. He turned the switch with a flick of his finger. The lattice walking-stick vanished, all but the handle. He passed his hand through the space where it had been. I had a horrible, sickening jolt when I saw the ends of his fingers seemingly jump three inches from the rest of his hand and then slip back into place unharmed. I knew what it was, of course. Along their length there wasn't any space between them. From the side there seemed to be.

"This, I think, is what you suggested yesterday," said Santos. "It is a cylinder of other-space. A closed space or a pocket universe which is cylindrical."

He turned the handle and that peculiar look of wrongness moved. He seemed to rest the end of it on the floor. I went over, and my heart came into my throat.

The wildest, wierdest of all my visions was quite true. The thing did absorb space. It was three feet long.

When you put one end at the level of the floor and looked lengthwise through it, where the thing was, the floor was *three feet nearer!* I put my finger on what appeared to be a three-inch disk of planking at waist-level.

It felt solid. It was. I was touching the

floor without bending over. I fumbled in my pocket and laid a coin on that seemingly—but not actually—upraised disk of planking.

Santos nodded, and turned off the switch.

Then the lattice-work cane was back in place, and down on the floor, without bouncing and without dropping, there was the coin. He turned the switch on again and I picked it up—without stooping—and broke out in a cold sweat.

"That's what I thought," I said shakily.

"Lay that thing down sideways on your work-table. I—stopped and bought some marbles."

He laid it down, and I showed him what I meant. With trembling hands I set up a sort of trough of cardboard, bent into a V, pointing into the end of the lattice-work device.

He turned it on. I rolled a marble down the trough so that it would run into the extraordinary optical look of wrongness, at one end. The rolling marble reached the limit of the pocket universe—and rolled away from the other end of it!

It did not pass through the space in between, because in *that* line there wasn't any space in between! It had been rolled up and closed in upon itself. It simply wasn't any more.

DINE by one, I let every one of the marbles roll down the trough, and one by one they appeared with the utmost nonchalance and the same momentum a yard down the table.

I took out my handkerchief and wiped my face. I was sweating. My teeth chattered.

"Suppose, instead of something three inches in diameter and three feet long," I said, "you make one of those things six feet in diameter and ten miles long! You put one end at Forty-second Street and the other up in Yonkers. You turn it on. It doesn't exist any longer. It doesn't block traffic. We walk right through where it was built. The space where it was has ceased to exist."

"And then suppose somebody walks into the Yonkers end of it? He steps with one step from Yonkers to Forty-second Street, because along that line and only along that line, there isn't any space in between! Suppose you build one of these things across the continent. It'd cause miracles!"

Santos looked at me and grinned. But it wasn't an excited grin. It was a sympathetic

grin. It was a pleased grin. He actually seemed to be thinking much more of my enthusiasm than of his own triumph.

"Ah, yes!" he said. "That is true. That is rapid transit carried to the point where there is no longer such a thing as speed. If all goes well, *amigo mio*, you shall have full conduct of such practical matters as making it possible to go instantly not only from Forty-second Street to Yonkers, but also to Weehauken and Kokomo. I shall stand back and admire."

"Even in time we'll be able to make it a step to Hondagua!" I said feverishly.

Then his grin froze. But he did not say a word. He simply went back to the alterations he was making on the pocket-universe generator in which he had put a mouse. His face looked peaked and bitter, just because I'd mentioned Hondagua, which reminded him of the *Presidente*. I'd put his mind back on his own past.

I wish I hadn't done that!

CHAPTER IV

Trouble for Guttierrez

THE President of Hondagua came to New York two days later, and he was news. It wasn't the regular sort of news, either, or the regular polite newspaper tributes to an admirable if small-sized good neighbor south of the Equator.

That first letter to the editor of my paper had started things. Such letters don't often mean much. This one pointed straight to a story. The other papers picked it up. And then they spread that story all over the New York front pages, and it went on from there.

One paper headlined its story, "Hondaguan Fuehrer in New York." The mildest of them called him "Dictator," which is a nasty word these days.

They had dug into the perfectly available facts about the administration of Hondagua, and they exposed the *Presidente* with beautiful clarity as a fascist, a graftor, a murderer and a cheap crook who had just sold out his followers at home in exchange for a getaway for himself and his loot.

A Senator got up in Congress and attacked the Administration for letting him enter the country, in spite of the fact that he was still

legally the chief executive of a friendly nation. There was a terrific row because his baggage had, by diplomatic courtesy, been allowed to enter the country without customs inspection.

Instead of a perfunctory account of his arrival and a non-enthusiastic story of his greeting by the Mayor, there was a corps of reporters and cameramen to meet him, there were pictures of him on every front page in town, and the stories were blistering.

He went to the Waldorf Hotel, where a suite had been reserved for him and his attendants, and where the Hondaguan flag was promptly hung out with due ritual to indicate his presence. And the story didn't die there. The papers kept leg-men on the job and every detail of his activities splashed the front page.

He was an inordinately fat man, swarthy, with the worst hard-boiled look I've ever seen in a half-tone picture. He posed in uniform and a saber, with vast dignity, for the press photographers. Apparently he couldn't read English and none of his attendants dared tell him what was being printed about him. His attendants were a motley crew, themselves.

The afternoon papers described in detail the row in the service section of the Waldorf when some of his uniformed attendants insisted on remaining with his baggage every minute and even riding up in the service elevators with it. There were pictures. One photographer had irritated such a guard to the point where his picture was snapped with his hand on the revolver in his holster and a menacing scowl on his face.

Next morning the morning papers carried the story of another row. The *Presidente* had ordered feminine entertainers sent up to his suite for what was apparently to have been a party. They didn't appear and he raised Cain. But then somebody apparently got nerve enough to tell him what the papers were saying, and he shut up like a clam. He passed twenty-four hours in his suite without once peeping out of it or making a single request for service that the newspapers could use.

But they didn't let up on him. They republished pictures of the armed guard over his baggage. They made estimates of the amount of money and loot the Nazis had sent to Hondagua, and they credited him with having stolen all of it.

Then they estimated the amount of money he had managed to extort in his own country

while ruling it, and they asked if that many millions of dollars had been brought in under the cloak of diplomatic immunity, and would he be allowed to get away with it.

The election which was to choose his successor hadn't yet been held, but it was reported that Hondagua was a madhouse. There was already a provisional government in power which ignored Gutiérrez's legal status, and every boat leaving the country was packed, and every packtrail out of the nation crowded, with former followers of the Presidente trying to get away from retribution.

I WENT into Santos' laboratory, bringing him some stuff he'd asked me to get. I found six other Latin-Americans sitting in there listening as he talked to them in Spanish. They turned poker-faces to me when I came in, but Santos introduced me—all Spanish names like Calderon and Ybarra and so on—and they relaxed. Then he explained expansively to me.

"These are my old friends and comrades in arms, amigo," he said. "We had lost touch, but the coming of Gutiérrez to New York made us seek each other out. Now, with the storm of newspaper comment, we have decided that something must happen to him. The American Government will surely take away his wealth. Probably he will be arrested and extradited to Hondagua as a common criminal. I would like to be there when the mob gets hold of him!"

The faces of the other six went studiously expressionless. I wouldn't like anybody to hate me that much!

"We met here for political debate," Santos went on with evident pleasure. "I invited them also to witness a demonstration of my discovery. I fear that they look upon it as conjuring, but it pleases me to show off first to my countrymen."

I put down the stuff I'd brought—mainly a lot of those small storage B-batteries they used to use in portable radios. They're hard to find, nowadays. And Santos staged his show.

He went through all the stuff I'd seen, and then he pulled a new one. He'd evidently put aside the small contrivance I'd last seen him working on, and he'd made a gadget—a diamagnet or whatever it ought to be called—a thing that closed space around itself in a pocket universe when it was turned on—that was extendible. It worked somewhat like a pantograph arm. It closed up to

about three feet in length, but he could expand it to quite five times that length. And at all lengths it wrapped space around itself and ceased to exist in our universe. As he showed us.

"I am almost ashamed of this," he told me apologetically. "It is a device which a burglar would be delighted to own."

He turned on the switch and the thing vanished. In its stead there was that odd appearance of wrongness which I've explained, but can't possibly make you really imagine. And he worked the control on the handle, and it stretched out and thinned. It reached all the way across the laboratory.

Then he put his hand into one end of it and—of course—it came out on the other side of the room and picked something up. He showed it where he stood and put it in his pocket. Then he grinned at his companions—they had a hard time looking poker-faced—and he pointed it at the floor. It went through the floor as the first one had gone through the newspaper without tearing it, and he brought up something from the laboratory downstairs, and then put it back. Finally he pointed the slender rod of nothing at an electric-light bulb, and he put a quarter in it. This done, he turned off the switch.

When you think of it, putting that quarter inside an unbroken electric-light bulb was, all by itself, enough to make you hold your head in your hands and groan. But Santos' friends chuckled. They slapped each other on the back. They roared with laughter. Santos looked at them with a queer tight grin on his face and his eyes shining.

Abruptly they filed out and Santos turned to me.

"I know that you think it was childish, but they are my old comrades," he said apologetically. "They have as much to forget about this Gutiérrez as I have. To make them amused, even for a little while, is worth much."

I didn't say anything. I pointed to the parcel I had brought—to the small-sized storage B-batteries out of the kind of portable radio that isn't made any more.

"I got the batteries you wanted," I told him. Then I said urgently: "Listen, Santos! I can get hold of some people to see a demonstration of that thing when you're willing to show it, but first you've got to get at least a patent application in. Do that, and I'll guarantee that there'll be all the money you need to start using it."

SANTOS looked at me, and there was reserve in his manner.

"*Bueno!* But tell me what use you will put it to."

"For one thing, there'll be no slums," I said earnestly. "People live in crowded places so they can get to and from their work. With this discovery of yours, distance simply hasn't any more meaning.. There won't be any more subways. There won't be any more of the nastiness that just having to live near this place or that now makes inevitable.

"For another, there'll be no more mines. You can push one of these things down to a vein of ore just as easily as you pushed it down into Dobson's laboratory below you, and the ore will be just the same as at the surface. Mining can be done cleanly, in the sunlight.

"There won't be any more hatreds between nations when it is possible for anybody in the world to step through a doorway and for an afternoon see that the people in other countries are the same sort of people he is. And I think that there won't be many degraded, graft-ridden governments when people can see that they aren't necessary. That's part of it, but there's a lot more. There's—"

Santos' face broke out into a genuine smile, and his eyes were warm and friendly.

"*Bueno, that is enough!*" he said. He shook hands with me, impulsively. "You are *mi amigo* mio. You shall see to all of that! But there is a little thing first, just one little thing, and then I will place myself in your hands. You brought the little batteries. Excellent! I would not have known where to seek them."

He seemed astonished and pleased that I had found exactly the sort of batteries he needed. They're hard to find. They're away out of date.

But if you want to know, of all the mistakes I made in the whole affair, finding those storage B-batteries is the one I'm sorriest for. If I hadn't done that, all might yet be well.

Santos vanished for eight days. He didn't go to the Institute or his laboratory. I didn't know where he lived, but I managed to find out and went there. His landlady told me that he had packed his bags and had departed on a short trip. He had told her he'd be gone a week.

He'd ridden off in a cab all by himself, and she was holding his mail against when he came back. I scribbled a note, saying:

I'm sweating blood, wondering if you're going to be run over by a truck. Call me when you get

back. You're pretty important for the sort of world I want to see."

I signed it and left the note with her.

But it was eight days before he telephoned me. And in those eight days I had one long-continued case of jitters.

You remember the newspapers? You know what a holiday they had with the Presidente of Hondagua? And you probably remember the ending,—according to the newspapers.

They had it very nearly right until the very end, but you'll be able to fill in what they missed from what I've already told you.

The tumult and the shouting about Gutierrez grew louder and more specific. Planes had put correspondents down in Hondagua in a hurry, and for the first time in eighteen years people dared to tell the truth. It had been the tightest totalitarian government in the world outside of Hitler's, minus the party line.

There wasn't any party line. There weren't any principles the gang that ran the country even pretended to believe in. They'd had that country under their thumb, and they'd pinched it. They'd milked it. They'd almost literally bled it white.

The stuff that came out of the capital city would make your hair curl. And it became so clearly evident that Gutierrez had made a deal to save his own skin and loot, and it looked so much like his carefully-guarded baggage contained not only his own loot but Nazi money too, that the newspapers began to howl to high heaven that his diplomatic immunity ought to be scrapped and his baggage looked into.

Then a prominent firm of Latin-American bankers announced that a very large sum, running into many millions of dollars, had been placed in their hands as a trust, to be used for the benefit of the people and the nation of Hondagua.

There was a moment's pause, and then a renewed howl. So Gutierrez was trying to turn back part of his loot to beg off, eh?

The New York newspapers—always delighted with a scandal which did not hit the home town—sounded off. Then the Latin-American bankers issued a dignified statement that the money was not put into their hands by Gutierrez, but by a committee of former Hondaguans who had been Gutierrez's bitterest enemies and were political exiles from that country.

Then the works really blew up. The President of Hondagua apparently went out of his

head, in his suite in the Walderbilt. The management heard shooting, and the members of his train popped out of every door and ran like rabbits. They were scared!

Gutierrez bellowed hoarsely that he had been robbed. He marched out into the corridors of the hotel with a revolver in each hand, frothing at the mouth and hunting for those who had robbed him.

CHAPTER V

Santos Evens the Score

AMERICAN detectives finally got to Gutierrez, who panting and purple with rage, swore that his luggage had been looted in his own suite and by his own followers. He was a hard-boiled egg, and no mistake. He actually and literally foamed at the mouth.

His baggage had arrived and it was intact. He had made sure of that himself. Somebody had stood guard over it day and night—two men at a time, because he didn't trust any one person too much. Those who came off guard were searched in his presence.

But he had been robbed of every peso he had brought with him, and he bellowed that he had brought—well—so many millions that nobody believed it until it was pointed out that the sum just passed on to be spent for Hondaguan progress happened to be exactly that same amount. But the firm of Latin-American bankers simply said sedately that it was an interesting coincidence, but no comment could be made.

Gutierrez wasn't through, though. He was ruined, discredited, penniless, and disgraced. But he wanted to get even. He demanded that the police and the FBI find out who had robbed him and turn them over to him for punishment.

The FBI politely consented to examine his luggage for clues, and there was another payoff.

Gutierrez had looked into every emptied trunk and strong-box. Of course! But when the FBI examined them they found confidential papers that Gutierrez would definitely not have wanted them to see. What they didn't prove was not worth proving.

For one thing, they put the works beautifully on certain persons—not originally from

Hondagua—who had tried valiantly to defend Gutierrez from what they called a "smear attack" in the newspapers. The FBI was very, very much interested. But it was polite to Gutierrez.

It left him in his suite with a guard of American police to assure that he would not be molested. The guard also made sure that he would not go out by himself or, in fact, that he would not go out at all.

With that guard at the door, the next day Gutierrez was found dead. Very dead. Conclusively dead. Nobody had heard any loud noise, but Gutierrez was a horrifying corpse because his expression screwed into an appalling grimace of superstitious terror. He hadn't died of fright, though. He'd been killed, by somebody who had made quite sure.

All this took a week to happen. On the eighth day Santos phoned me. I took a cab and went streaking to his laboratory. His expression had changed. It was somehow relaxed and infinitely calm now. It was so calm I stared in surprise. He grinned at me.

"*Hola, muy amigo mio!*" he said cheerfully. "Que hay?"

I swallowed. All of a sudden I knew the truth. I sat down, feeling sickish.

"You've been talking so much Spanish lately that you forgot I don't understand it," I faltered. "Do you feel better now?"

He nodded. He watched me alertly.

"No," I said bitterly. "I'm not going to tell the police. Why should I? He rated it, Gutierrez did. But you took the devil of a chance! You could have been killed. Do you realize that you're the only man in the world who knows how to make a diamagnet?"

"And that is important?" asked Santos gravely.

"It's mighty important!" I said bitterly. "You've no right to risk your life."

"There was no risk," he assured me. "The American wife of one of my friends rented the suite two floors below his. The one above or the one below might have seemed suspicious, but two floors below—that was safe."

"You've had your fling," I said angrily. "You used that extensible contrivance, and made a pocket universe that reached from the inside of his baggage to where you were. You absorbed the space between. And you looted his luggage from the inside, took the proceeds and put them in a fund to be used for the progress of Hondagua. Incidentally, the people of Hondagua make a profit, be-

cause a lot of that money was originally German."

"It is not profit," said Santos. "It means such things as schools and doctors and honesty, which they should have had a long time ago."

MY EXPRESSION must have told him how much I knew.

"And somewhere among his possessions, there was a lot of incriminating stuff, which you took with the loot," I insisted. "After he'd found everything was gone, you put it back for the FBI to find."

"But naturally," said Santos in tranquil tones. "It exposed other villains. I do not like scoundrels."

"So you fight them," I said, "with the technic of a super-burglar!"

I did not say anything about the killing of Gutiérrez. That wasn't my business. But I could understand the expression of appalling, superstitious horror his dead face had worn. He'd seen materialize before him in thin air the faces of men he'd wronged and whom he'd believed dead. And they'd talked to him before he died.

"You used the technic of a super-burglar," I repeated bitterly. "You risked the most valuable life in the world!"

His grin was wryly affectionate. He was a dried-up little runt of a Latin-American, but I liked Santos, and he knew it.

"I am rebuked," he said ruefully. "Your viewpoint is not mine, *amigo*. You think of people you do not know and who would probably bore you to death. I think of—the things that seem important to me. But your viewpoint is sound."

He seemed to debate a little.

"I plan one additional experiment," he said presently, "I must make it before I prepare to publish my discovery and apply for what patents you shall advise me to ask. I am sure it is perfectly safe. I have proved it. But I will take most elaborate precautions."

"What the devil are you going to do now?" I asked hotly.

He told me and I raged. But he grinned at me as I stormed up and down his laboratory, reminding him that he was a man and not a mouse, and calling him a traitor to the future. But he grinned on and repeated that he would take precautions. The most elaborate ones.

Next morning, early, I got a note from him: *Amigo mio:*

To spare you worry, I am making my experiment tonight. As you know, I plan to enclose myself in one of the areas of space which becomes a closed universe when its diamagnet is turned on.

For the purpose I have made a diamagnet large enough to contain me in its field, and I shall energize it with the storage-batteries you procured for me. I shall have the switch inside, and turn it on, and then immediately turn it off again. Nothing can possibly happen to harm me.

I enclosed a mouse so, and it was not harmed or even disturbed by the experience, though I left it in the closed universe as long as I thought the air would suffice it.

But I am taking other precautions. I have written out a complete account of the theory of the diamagnet, and exact instructions for manufacture. I would leave it in a desk drawer, but you would reproach me.

So I have placed it in the small universe-generator I made for the mouse experiment. I place a single tiny storage-battery with it, and a clock will turn off the current at precisely noon tomorrow. I have made a practical device which even you did not think of! A truly burglar-proof safe!

If I am not in my laboratory when you arrive, you will be able to find how to duplicate all my results at noon. But I shall be there, and we will have lunch together.

As the greatest of possible precautions, and so you may not reproach me for carelessness, the two remaining smaller diamagnets—including the one for burglary—will go into the enclosed space with me for one-half of a second.

And because you might be absurd about it, I especially enjoin you to proceed to bring about the happier world you envision if the unthinkable should occur and disaster befall me. But actually, I shall be waiting for you for lunch.

Tujo atto. y affirm. amigo!

I went to the laboratory. I don't know exactly why, but I was in a cold sweat all the way. And Santos wasn't there.

There was a big space, over by the work-table, that somehow looked wrong any way you looked at it. It was big enough for Santos to be in. The stand which held the contrivance upright when it was turned off was visible underneath, like the handle of his portable gadgets, and like the wires which had led into the first one of all.

But Santos hadn't turned it off. If he'd used a plug to a power outlet, I could have cut it off myself. But he'd used the storage batteries. There wasn't any way to get into it. There isn't any way to get in. He's in a closed universe. A pocket-sized closed universe, to be sure, but nevertheless a tight one.

FOR the rest of it, there was the little thing he'd made for his mouse experiment. That was on its stand, too, and that

hasn't turned off either.

I stayed in the laboratory all that day and night and the next day, waiting for one or the other to turn off. Neither one has. That's been three months ago,—and no tiny storage-battery, constantly working, would hold a charge for three months! It would have exhausted itself, normally.

Of course the two things themselves are perfectly demonstrable pocket universes. You can do with them every experiment we first tried on the very first diamagnet of all.

Sooner or later, if neither one turns off, I'll explain what I can and prove what I say by them, and they'll be put in museums and taken care of and studied and so on. But I feel rather sick.

You see, the people of Hondagua have a lot of money that's going to be spent for them by people who want it to do some good, and it's a small country, and there are enough millions for it to make a big difference.

But there's Santos! Hang it, I liked the man! And until he comes out of that pocket

universe, nobody will get any benefit from his discovery! But there's no way in the world to speed up the turning of that switch. . . .

He'll come out, all right. He only expected to stay in there for half a second, and he's been in there three months, and of course he took no provisions and also of course there's been no fresh supply of air. But he'll come out. That battery on the little diamagnet couldn't have an atom of power by this time, but it's still on and it's been on for three months.

So I don't think the clock has stopped or that Santos is dead.

They're in little closed spaces, little pocket universes, which are strictly their own. And we don't know any of the constants of such small closed universes.

For instance, so far as Santos is concerned, we don't know how many months or years or centuries in the time of this universe will have to pass, before a half-second has gone by in that.



FAR IN THE FUTURE, THE SECRET OF THE POCKET UNIVERSES IS REDISCOVERED BY MAN WHEN DOOM THREATENS THE GALAXY

in

THE END

Another Astonishing Complete Novelet

By MURRAY LEINSTER

Coming Next Issue—Plus Many Other Unusual Stories!

THE STORY BEHIND THE STORY

MESSRS. John Russell Fearn, Murray Leinster and Keith Hammond have been obliging enough to delve into the origins of **THE MULTILLIONTH CHANCE**, **POCKET UNIVERSES** and **CALL HIM**



DEMON respectively and come forward with notes thereon to Sergeant Saturn.

Since the first two of these stories are on the pseudo-scientific side—although Mr. Fearn's contains definite fantasy connotations —while Mr. Hammond's is horror fantasy pure and far from simple, they present an unusually interesting variety of ideas.

Taking fewer chances on chance and with more regard to the scientific scene, Mr. Leinster approached his novelet from a very different jumping-off place. Says he:

"*Pocket Universes*" came out of an argument I had with myself. Under certain circumstances, space is warped. Some of it apparently ceases to be. If you make a gigantic square, exactly accurate, with the sun in the middle, a line through the sun to the two parallel lines at right angles to it will be shorter than a line at the same angle between those two parallel lines a few million miles out. It works out that things which are equal to the same thing aren't always equal to each other.

For no particular reason that bothered me, and I started to play with the idea of space-warps on a small scale and the effects they'd produce. The science part of "*Pocket Universes*" came out of that.

For the story itself, any number of inventions have been made and lost. In Nero's time an artisan showed the emperor a crystal goblet which he dashed to the ground, dented, hammered into shape again with a hammer, and presented to the emperor.

Nero had him killed to preserve the value of his collection of crystal. Now, we have transparent plastics now, but one wonders. . . . And in John Evelyn's diary, he tells that in 1660, in Rome, he was shown a ring, from the stone of which a man lighted his pipe as often as he pleased. The man offered the secret for ten ducats, Evelyn thought it too high, later reconsidered and couldn't find the man again.

Evelyn wasn't a liar. They had neither matches nor their equivalents at that time, and it wasn't a flint device. We've got pocket-lighters now—but none as small as the stone in a ring—yet one wonders. . . . And how many other discoveries have been made and simply forgotten? You guess. I guess a lot.

There you have the elements of the yarn.