

NOW PUBLISHED EVERY MONTH

# STARTLING

*stories*

Vol. 29, No. 3     A THRILLING PUBLICATION

April, 1953

## Featured Novel

<b>HALOS, INC.</b> . . . . .	<b>Kendell Foster Crossen</b>	<b>10</b>
<i>It was pretty difficult to fall for a girl on a planet with light gravity—but Jerry Ransom was willing to attempt it!</i>		

## A Full-Length Novelet

<b>FULFILLMENT</b> . . . . .	<b>Ross Rocklynn</b>	<b>82</b>
<i>They accused him of being asleep, and Jig had to prove that only a sleeping man can have the conviction of his dreams!</i>		

## Six Short Stories

<b>EARTH IS THE EVENING STAR</b> . . . . .	<b>Robert Sherman Townes</b>	<b>54</b>
<i>They got a key to the dead city from a race no longer there</i>		
<b>THRESHOLD</b> . . . . .	<b>Robert Donald Locke</b>	<b>67</b>
<i>He knew that some day he would leave the Earth of his youth</i>		
<b>DISTORTION PATTERN</b> . . . . .	<b>Sam Merwin, Jr.</b>	<b>100</b>
<i>She was the boss's secretary, but sat in the lap of the gods</i>		
<b>CLOCKWORK</b> . . . . .	<b>Leslie Bigelow</b>	<b>111</b>
<i>Was the professor a prophet—or, perhaps, was he a demon?</i>		
<b>LILA</b> . . . . .	<b>Peter Phillips</b>	<b>117</b>
<i>He simply had to stop the girl from asking so many questions</i>		
<b>RUBBERNECK</b> . . . . .	<b>Richard Barr and Wallace West</b>	<b>127</b>
<i>They were on a pleasure jaunt to a primitive town, New York</i>		

## Features

<b>THE ETHER VIBRATES</b> . . . . .	<b>The Editor</b>	<b>6</b>
<b>VIDEO-TECHNICS</b> . . . . .	<b>Pat Jones</b>	<b>9</b>
<b>FARAWAY PLANETS</b> . . . . .	<b>Willy Ley</b>	<b>78</b>

<b>N. L. PINES, Publisher</b>	<b>FANNY ELLSWORTH, Managing Editor</b>
<b>EDWARD R. ROFHEART, Art Director</b>	<b>SAMUEL MINES, Editor</b>

Cover Painting by  
EMSH

STARTLING STORIES. Published every month by Better Publications, Inc., N. L. Pines, President, at 1125 E. Valle Ave., Kokomo, Ind. Editorial and executive offices, 10 East 40th St., New York 16, N. Y. Entered as second-class matter at the post office at Kokomo, Ind., under the act of March 3, 1879. Copyright, 1953, by Better Publications, Inc. Subscription (12 issues), \$3.00; single copies, \$.25; foreign and Canadian postage extra. In corresponding with this magazine please include postal zone number, if any. Manuscripts will not be returned unless accompanied by self-addressed, stamped envelopes and are submitted at the author's risk. 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. April, 1953, issue.

PRINTED IN THE U.S.A.

*Was the professor a prophet or a demon?*



Under the savage sun he looked like a prophet in some dreadful valley

# CLOCKWORK

## BY LESLIE BIGELOW

**O**F COURSE everybody remembers last June. For June, 1955, is a central date in the human tale; a date, in fact, like December 2, 1942, when before physicists whose eyes widened with glee, then narrowed with surmise, the uranium pile chain-reacted beneath Stagg Stadium at Chicago.

At 11:33 p. m. Greenwich time, June 22, 1955, the first earth rocket gained the

moon, frowning Tycho Brahe's crater. Because that rocket carried instruments (including several extremely quaint ones, smuggled onto the rocket) the moon was scrutinized by telescope, canvassed by radar, and of course inspected by a brigade of amateurs on every housetop.

Therefore, on the night of June 24 perhaps several hundred thousand of us witnessed an effect contradictorily de-

scribed and unconvincingly explained. At 12:22 the moon shimmered to a gossamer disc, almost as though it were our moon no longer, but instead an imminent moon; a moon about to be born; a moon wanly peering through a hole where the moon had been. Because it resumed its normal aspect within five minutes, the astronomers could not check certain disturbing computations of weight. But the Mount Palomar spokesman said, "I tell you, the moon had *negative density*."

On the night of June 26, the moon bulged like a toy balloon, as though puffed out by some interstellar prankster, then at once shrank back to normal.

By now, of course, our playful satellite had extorted headlines of a size reserved for the Last Judgment, while our backyards pulsed with embryo Keplers, so that the phenomenon of June 30 was witnessed by half the world. On that night, after blurring for an instant, at 1:16 the moon lost all familiar landmarks. Gone the dead sea hollows; gone the cindery mountains and the drifted ash; gone, all gone.

The *Chicago Tribune* declared: Other Side of Moon Visible at Last. And the comment was as sound as any of the *Tribune's*. The properties of the moon were unchanged. But this moon, this literally new moon, was smooth. The Man in the Moon had gone somewhere a-journeing. And so far as we know now, he has gone for good.

Well! My friend Griffenhoek likes to insist that history is at best a thin gruel: forlorn nubbins of fact blobbing in a sea of conjecture. Suppose we set another nubbing afloat in that conjectural sea. For what really happened during that June of 1955 can be related. But let us implore our diverse gods that only Griffenhoek may ever explain precisely how it happened.

**I**T WAS one of our friendly sessions of disdain and insult: Noah Griffenhoek, professor of physics, and myself, Patrick Lanson, professor of English—a strange alliance, surely. "Mathematics!"

I snorted, resuming our noisy quarrel. "Systematic jabberwocky!"

Griffenhoek smiled at me over the chess table in his office, where we sneak games between classes at the university. I like to tease him to his noble roaring, so, "Mathematics! Why, take any group of objects and certainly you can weave a tissue of numbers around them. Some web of relationship. So far that's all you prancing mathematicians have ever done with the world. But then you erroneously argue that those numbers of yours correspond with reality. Correspond with reality! Fantods and tarradiddles!"

But Griffenhoek merely smiled.

"Very well," I said. "Consider the number 1 or the number 7. Just *why* they correspond with reality, only Pythagoras could say. But they do—some-what. At least, you can have two wives or seven houris. But what about negative numbers? Oh," I went on with what I hoped was maddening condescension, "Oh, I suppose negative numbers are 'real' too. A negative 7 might be seven houris you can't get."

Good! His fingers pattered; his neck distended. So I proceeded, "But now I have you, Griff. What about imaginary numbers? What do *they* correspond to? What about the square root of minus one? What does *that* match in the real world?"

With an effort, Griffenhoek still smiled.

"Charlatan!" I sneered. "Impostor! Show me what a surd corresponds to in the real world and I'll believe you. But until you do that, your mathematics is the kindergarten trifling of deluded theorists. It's—"

At last! Griffenhoek shoved the board from beneath the chessmen. He demanded, "You will be at home this afternoon, I trust?"

"Certainly. Even to a mathematician!"

In a carefully controlled voice he said, "This afternoon, then. But you will not like it." Then he launched his ultimate insult. "No, *professor of English*, you will not like it at all."

**P**ROFESSIONAL skill aside, Griffenhoek is that capital fellow, the old time master craftsman, cranky and exacting; the sort of man who peers at you over steel-rimmed spectacles in a job print shop; or mends watches in a small southern town and invents his own escapements; or like Cerberus guards the precision toolroom in a machine shop. Usually a Debs socialist, an agnostic, a bachelor, argumentative and whiskered. The species, alas, nears extinction, along with great stylists, imperial philosophers, and honest men.

Another tiresome eccentric? Well, God bless eccentrics, for it is the eccentric, the sport, who, seeing things at an odd angle, sometimes really sees them. If Riemann had not devised the non-Euclidean geometry required by Einstein's theory, could that geometry ever have been devised by some snuffling pedant? Or as Einstein himself declared, if Gauss had not invented some of his equations, what reason is there to suppose that anybody would ever have invented them?

Yet Griffenhoek's professional rank is lofty. Certainly his monograph on the 24-dimensional universe of the electron is already a classic.

As I waited for him in my trailer, simmering on the Arizona desert, I mused on the problem I had set him. The problem had vexed me for years; I had consulted academic mathematicians in vain. It is easy to understand—vaguely—what a 1 or a 2 is. Vaguely, because there are riddles in Number, just as there are riddles everywhere. But there's a vexing aspect of the imaginary numbers. Exactly what in our world of "reality" corresponds to  $\sqrt{-1}$  or  $i$  in the same way that a single elm loosely corresponds to the number 1? Nothing, so far as I can see; nothing at all. Yet by the use of  $\sqrt{-1}$  bridges and dams are built, the airfoil of a plane is created, electricity is manipulated, and one day soon Mars will be reached.

The surd  $i$  is a thing unreal, yet usable; imaginary, yet operative. It is, in fact, a good deal like a thought, which is itself immaterial yet which penetrates

the world. Was it Jeans who said that the world itself reminded him of nothing so much as a thought in the mind of God?

A plume of dust. The old snorting Lincoln. And Griffenhoek in a seer-sucker suit, ancient panama, carrying a large red morocco case. His mustache, I was glad to note, still twitched in feigned wrath.

To nag him further, I began at once, "Mathematics! Pooh! Consider, Griff: we have a mind of a certain limited kind, which perceives the universe in a certain limited way. Very well. In our mind we perceive certain relationships which we call mathematical. Then we slap those relationships on the universe and say *eureka!* the universe is just like our minds. What impudence!"

But Griffenhoek only sighed. Outside in the sun the thermometer stood at 147. Then he mustered strength enough to growl. "Professor of English! Comma counter! Trohee trifer!"

He wiped away the waterfall of sweat from his bald head. Then, fumbling with the awkward clasps of the morocco case, he said, seriously, "According to Pythagoras, numbers are eternal things, the final realities of a misty world. Plato concurs: to him numbers are among those essences, those ultimates, which alone are real." His words rang like a motto prefacing some noble volume; we both became grave at once.

Now the case lay open.

"Oh, magnificent!"

Pleasedly, "You really think so?"

"You know I mean it. Superb!"

For here in the morocco case were artifacts whose purpose I could scarcely guess, but exquisite, like so many lost triumphs from the workshop of Archimedes. A four inch cube with two sides slotted. A track like the track of a toy train, but a mere quarter-inch in gauge, finished like a Cellini masterwork. Flat hieroglyphs, enameled and chased—numbers and esoteric symbols.

**F**OR a moment I merely gazed and gazed, while Griffenhoek still panted a little and mopped away the renewed

waterfall from his head. Oh, we are shrewd little fellows nowadays, whacking away like little men. But no longer can we cut intaglios as the Romans did; no longer engrave steel, as the eighteenth century did; for that matter no longer even draw animals as the Cro-Magnons drew them upon the cave walls of Perigord, twenty thousand years ago. Certainly we cannot match the clockwork ingenuities of our ancestors.

For instance: four tiny porcelain figures in perukes and lace cuffs, green coats and rose-satin small clothes. *Tick-tick-tick-tick*. The tiny figures raise tiny bows. Upon tiny violins and cellos the porcelain figurines play a quartet of Mozart. And this is no music box. With tiny bows upon tiny instruments they play the quartet; they play it well!

Or a golden birdcage, an inch through. Two jeweled parakeets upon a silver perch. They sidle, grasping the perch with ruby claws. They fluff their throats and twitter. *Tick-tick-tick-tick*.

Or those astonishing Easter eggs made annually for the Czars of Russia. Or the brazen image of Albertus Magnus, endowed with articulate speech. Or chess players, like Moxon's Master; or pianists and swordsmen, some of them never really explained.

Or the figures in Griffenhoek's morocco case. For these seemed to be clockwork figures, for a purpose I could not fathom. "Magnificent. And. . .?"

Griffenhoek chuckled. "You are like Lord Kelvin. You can't understand a thing unless you see a model of it."

He set the cube upon the trailer linoleum, dainty, superb. Mortising sections of the tiny track, he passed it through the slots of the cube, like a child's railway line passing through a toy tunnel. Then, having wiped his hands carefully, he drew out a flat enameled symbol, a figure 2 with tiny wheels in its base. The wheels fitted on the little track.

Of course I itched to learn about the beautiful toys, yet somehow their very beauty suppressed curiosity, or made curiosity become vulgar. And it occurred to me again how old it is: ours is an age hostile to beauty of finish, wheth-

er in manners, language or ethics. Yet this same rude age depends utterly upon science, which is staggering in its finesse of equation and laboratory contrivance. Like most ages, then, our own age disdains the very quality which supports it; and employs television, for example, to publish a prevailing crudity which in time will make even television impossible.

I seemed to hear Copernicus talking of his own theory like an enamored poet, speaking of "a wonderful symmetry," while Kepler adds, "I contemplate its beauty with incredible and ravishing delight. . ."

But Griffenhoek was saying, "First, suppose we perform a simple operation. Our single cube represents the number 1. Now, we multiply."

He released the figure 2. *Tick-tick-tick-tick*. With the dainty obbligato of a fine watch, the figure 2 ticked into the cube. A delicate chirring. Sauntering like a Restoration jackdandy, the figure emerged, while the cube blurred. *Tick-tick-tick-tick*. And now there were two cubes, one upon the other.

What could I say?

"Now we divide." Once more the 2 minced toward the cube, into it, out. The cubes blurred. Now there was the single cube again.

"And now we divide again." Once more the 2 entered the cube, emerged. And now there was a smaller cube, half the volume of the original.

"Good lord, Griff!"

With a staid digitor's air, Griffenhoek drew out a negative 2. "Now we multiply again." For several minutes he performed these simple operations. He enjoyed himself. Why not? His manner was elaborate and rehearsed. Penetrated by the negative two, the cube shimmered into transparency, as though it were a cube no longer, but a cube about to be born. It seemed to claim its own position in space, yet at the same time to withdraw from that space, as if pushed through, existing on reality's other side in a form of which the transparency was a symbolic ghost. *Tick-tick-tick-tick*.

Clockwork?

THERE in the Arizona desert, near the devil's road, the *Camino del Diablo*, among the sullen buttes, sentineled by giant Saguaro cacti, in a trailer cooled by a humming box—there the exquisite toys marched and countermarched.

At last Griffenhoek chuckled. "Now! I seem to remember that you were troubled by the square root of minus one?"

"Well, damn it all, Griff. Minus one has no square root. How in the devil can you take a square root which can't be taken? What is the square root of minus one, anyhow? Oh, of course, you mathematicians pretend to take it, just by putting the sign of the radical over minus one. But what then?"

Griffenhoek chuckled again. From his morocco case he withdrew a model surd,  $\sqrt{-1}$ . He engaged its wheels upon the tiny track. "Multiply?"

The surd minced toward the cube, into it, out. *Tick-tick-tick-tick*.

And now the cube was shivered. Now it, too, was a model surd,  $\sqrt{-1}$ . Yet, with all the cube's material drawn into the slender lines of the surd, there seemed to be no cogs, no gears.

"But how on earth! And anyhow, this is just another surd. What is the thing that *this* thing symbolizes?"

Griffenhoek smiled. He restored his cube to its original form. "And now, Lanson, now we divide. On paper we merely make a fraction of it, placing the one over the surd. But observe."

The surd entered the cube with the elegance of a Venetian macaroni, through it, out. *Tick-tick-tick-tick*. A blur of movement. It was like a man hastily stripping off his coat, leaving the sleeves pulled inward by his hurry. The blur resolved. The cube was *inside out*.

"Good God, Griff!"

Now he played with his toys; restored the cube; doubled it; caused it to waver, a gossamer cube; restored it again. Outside, the sun hammered and a hairy scorpion scuttled for shade beneath an ironwood root. Inside. . . .

"Magnificent toys, Griff."

"Toys?"

"Beautiful toys, but. . . ."

"Toys?"

"Well, clockwork, aren't they?"

"Clockwork?"

With his morocco case Griffenhoek marched out the trailer door onto the Arizona desert. My trailer's parked on a twenty-five cent acre of land, six miles from town. A friend drilled my well; the power line is tapped for lights and the air-conditioner. An odd way to live? Consider how rare are quiet and peace.

Twenty feet from the door squats a little boulder, glittering with mica.

"Watch." Already the sun had drawn its waterfall down his face.

He rolled the little boulder onto a silvery sheet. Then he seemed to aim his tiny track directly at the boulder. Under the savage sun his eyes were socketed in deep shadow; he looked like a prophet in some dreadful valley of the East.

Then, in a froth and blur, the boulder was made gossamer, was doubled, was turned inside out. Griffenhoek played with it as a candymaker plays with a twist of soft taffy.

Clockwork?

"How shall I leave your little rock, Lanson? Doubled? Transparent?"

"For God's sake, leave it as it was."

"Ah, you love your ugly little rock, perhaps?"

"A damned ugly rock, but I was used to it."

Withdrawing the silvery sheet he said, "You may thank your gods for this, Lanson."

"I do."

**B**ACK in the trailer again, Griffenhoek patted his morocco case. "You know, perhaps I ought to destroy these."

"Destroy? You couldn't, Griff. Could you destroy the cathedral of Chartres or burn up every copy of Shakespeare?"

Then he grew immensely serious. "I know what I'd like to do with them."

I waited, gazing at the desert.

Griffenhoek said, "Oh, they think I'm a crackpot; quaint old dodderer. And what do you suppose I think of *them*?"

He still resembled an angry prophet. "I do not like them, Lanson. I do not much like this world of ours, any more: imbeciles screeching the word "prog-

ress" in a world dedicated to a swinish mediocrity; politicians who live by taking in each other's whitewashing; aimless decadents gawking through a career of chomping popcorn at idiot movies or honking from nowhere to nowhere in a fetor of gasoline and burnt rubber."

I had to grin. "A mad world, my masters. But that was said centuries ago."

Griffenhoek chuckled at his own rhetoric, then burst out passionately. "What a foul paradox, Lanson! Science is a pure quest; true science is the immaculate exercise of reason in behalf of fact. Because it is pure, it is successful. And being successful, it is preyed upon, its technology subverted to a dirty multiplication of gadgets, toys for cretins, chrome-plate for the Chambers of Commerce. Thus baboonery, scratching its fleas, be-slimes the intellect!

"Damn this world, Lanson, and damn all the whey-faced ninnies in it."

A sheepish smile. A tired grin. His mood wore out. But then he grew serious again. "I mean it, Lanson. Damn this world. Or—most of it, anyhow."

I glanced at the morocco case. "Well?"

"Oh, I shall be fair. First of all there shall be a warning given."

"Eh?"

"A *mene mene tekel upharsin* legible in the very skies. In any case," he added, "next month I am required to join the rocket laboratory at Desindio. Perhaps they will permit me to make pretty little toys for the commanding general's brats."

He chuckled; the wrath was gone. Almost dreamily he said, "Of course the rocket will carry instruments. . ." Then he said, firmly, "But first a warning."

I wasn't sure in what spirit to answer.

**G**RIFFENHOEK wrote me once, a letter smuggled past the Desindio censorship and mailed from Santa Fe. It was good to hear him snort again: "Waste! I thought I'd seen waste among federal malingerers in bureau offices, but. . ." Or "What a crew! Goggle-eyed ranters who think electrons are pink, or maybe octahedral, or maybe

shaped like a baby unicorn!" Or "The army! They insist on quartering me with officers, some of whom can read and write."

Underneath the invective, though, I sensed a satisfaction with progress. And then . . . June, 1955.

Just what emotions boiled in Griffenhoek, do you suppose, as he stealthily inserted his hieroglyphs and his timers? To tamper with nature is a troubling thing: to gouge the earth, to fell a redwood, to dam a river—these are in a way all acts of impudence. But to blur the very lantern of our sky itself!

And what emotions, do you suppose, boil in Griffenhoek now? Returned to the university, he is my good friend still. But he has sequestered a corner of his mind. I nag him, beg him, scold him. But he only answers, "Me, Lanson? Me? What are you talking about."

Yet for all his bravado I think I sense in him a preying guilt, as though over some dreadful impiety.

And I? Well, few elementary textbooks provide the delicious shivers of a Machen or a James. Yet over and over, with profound unease, I read a simple passage in a high school *Elements of Geology*:

When the Earth was torn out of the gassy fabric of the sun by some errant star, its surface solidified quickly. Within fifteen thousand years, Earth was solidly encrusted, although this crust from time to time collapsed inward upon a core which contracted a little as it cooled. Such collapses, perhaps six or seven of them, formed Earth's mountains. . . .

But the core is liquid still, molten at prodigious temperatures. If volcanos have not already been convincing, to descend deep into any mine is to learn that the core of the earth is a furnace. . . .

GANYMEDE PLEASURE CLUB

A pretty thought!

In fact, it might be as well to heed my friend Griffenhoek. It would be improper of him, it would be maniacal, to act against us. Still, perhaps we should try a little harder to make sense.

Otherwise, someday. . . .

*Tick-tick-tick-tick.*