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Joseph W. Ferman, Editor and publisher

Isaac Asimov, SCIENCE EDITOR

Ted White, Assistant editor

Edward L. Ferman, MANAGING EDITOR

Robert P. Mills, Consulting Editor

The Magazine of Fantasy and Science Fiction, Volume 28, No. 1, Whole No. 164, Jan. 1965. Published monthly by Mercury Press, Inc., at 50¢ a copy. Annual subscription \$5.00; \$5.50 in Canada and the Pan American Union; \$6.00 in all other countries. Publication office, 10 Ferry Street, Concord, N. H. Editorial and general mail should be sent to 347 East 53rd St., New York, N. Y. 10022. Second Class postage paid at Concord, N. H. Printed in U.S.A. © 1964 by Mercury Press, Inc. All rights, including translations into other languages, reserved. Submissions must be accompanied by stamped, self-addressed envelopes; the Publisher assumes no responsibility for return of unsolicited manuscripts.

We live in an era of awe-inspiring, problem-solving specialization: personnel analysis, financial analysis, psychoanalysis—all geared for the ordinary incompetent Joe who is losing his job, his fortune, or his mind. Mr. Fortescue had real problems, however. He was losing everything that walked into his brand new House of Fun, Magic and Mystery. Which naturally called for some very fancy dimensional analysis...

DIMENSIONAL ANALYSIS AND MR. FORTESCUE

by Eric St Clair

WHAT HAD BECOME OF IRVING Gallagher?

Irving Gallagher, the reporter from the DAILY BUGLE, come to do a story on Mr. Fortescue's brand new (not even opened yet!) House of Fun, Magic and Mystery—where was he now with his slouch hat and his notebook and his stubby pencil?

Mr. Fortescue had not the faintest idea. The last he had seen of Gallagher had been a sort of visible pop, after which there was no more Gallagher. This had occurred yesterday evening, thirty paces into the black corridor of the fun house, in the glimmer of Mr. Fortescue's flashlight.

"Hey, Mr. Gallagher!" brought no answering cry; search, hours and hours of search (careful, always, to avoid the possibly fatal spot of evanishment!) met no Gallagher, living or dead.

Flashlight still in hand, because the power had not yet been turned on, Mr. Fortesque waited hopelessly in his office, waited . . . waited . . .

It was most unfortunate. This town needed a good fun house where young fellows could steer their girls through dark and scary passages with lots of green skeletons lurking, ready to lunge—at which the girls would holler, and throw their arms around the fellows' necks. Many an ice-pack that had dammed the river of romance would be thereby broken up. Mr. Fortescue had hoped to

escort the beautiful Mureen Wellesley to his greenest skeleton, so that she, too, might holler and throw her arms. . . .

Mr. Fortescue's shoulders sagged. Irving Gallagher being departed (to what unimagineable locale?), there would now be no nice write-up in the BUGLE. The publicity, if any, might be most unfavorable. Questions might be asked. Cops, even, might swarm through the House of Fun, Magic and Mystery—and what kind of business can you do in a fun house full of cops?

Mureen, ah, Mureen of the violet eyes! Further off than ever—for who would dare aspire so high with no more to offer than a probably defunct fun house?

So absorbed was Mr. Fortescue in these none-too-pleasant thoughts that at first he did not hear the beating at the front door. The beating continued, growing louder and more thunderous, and a voice bellowed, "Open up! In the Name of the Law!" BAM BAM BAM! Hearing it at last, Mr. Fortescue cowered.

"The cops!" he whispered.

It was indeed the cops, personified by a fat detective named Wallace O'Banion. Detective Inspector O'Banion chewed his cigar savagely at Mr. Fortescue, and displayed an enormous and very impressive badge covered with engraved stars and eagles, and probably made of solid gold. Trem-

bling a bit, Mr. Fortescue at once asked the inspector to his office, and produced his license to do business. It was in good order. Next, Mr. Fortescue showed his State Board of Equalization Permit to Collect Sales and Admission Taxes, which was also valid. He then riffled through his sheaf of building permits (plumbing, electrical work, foundations, roofing, etc.), and let the inspector look at the certification from the State Medical Society that none of the skeletons on display were human. His city and county taxes were unpaid, but they were not due for six months.

Finally, he allowed Inspector O'Banion to handle a crisp tendollar bill, which the inspector admired very much.

Nevertheless, O'Banion continued to chew his cigar at Mr. Fortescue, though with somewhat less savagery. "The BUGLE," he said at last, "claim they lost a reporter, name of Gallagher. Seen him?" Woodenly, Mr. Fortescue shook his head. "No?" said the inspector. "But I tracked him here"

The story is told of an Indian tracker who, finding a wolf dead of old age, followed the wolf's tracks (just to keep in trim) back, back, back to the very cave where the wolf had been whelped ten years before.

Inspector Wallace O'Banion was such a tracker. It showed in

the way he chewed his cigar, in his piercing stare, in the very jut of his jaw. He made no mistakes in his tracking. "I will get to the bottom of this," said the inspector. "Turn on the lights."

"There are no lights," said Mr. Fortescue. "The power is not turned on yet."

Heavily, the inspector considered this. "Then I will use my flashlight," he said at last. "Come along." Flashlight in one hand, heavy pistol in the other, he advanced into the gloomy halls of the fun house. Mr. Fortescue followed.

The inspector's flashlight showed up nothing scary—indeed, the interior seemed pretty sordid. It was not supposed to be looked at, illuminated by a police inspector's flashlight.

Stolidly, relentlessly, O'Banion tromped on. Then he stopped, and crouched over. "Look at that," he said, snuffing as a hound snuffs. "There's no more trail. It ends there." He pointed to a spot a few feet ahead.

"Do not go there—" cried Mr. Fortescue in anguish.

"I will get to the bottom of this," said O'Banion. He stepped forward.

And there was no more Detective Inspector Wallace O'Banion.

"My word!" said Mr. Fortescue. "Hey!" he croaked wildly. "Inspector! Where are you?" There was no answer. And no inspector.

Presumably, he had tracked down his man—for it was on this very spot that the reporter, Irving Gallagher, had also gone hence, flashlight, notebook and all. Wherever Gallagher now was, the inspector must be with him. But where on earth—or elsewhere?—could they be?

Mr. Fortescue almost wept with real sorrow, for truly he was now a ruined man. A newspaper reporter, missing, was one thing; a disappeared detective inspector was something quite different. Mr. Fortescue would lose his fun house, he would lose the beautiful Mureen—or rather, his chance to win her. It was gone, alas.

So he went to police headquarters to give himself up, and it is easier to imagine than to describe all that he went through in trying to explain what had happened to Inspector O'Banion.

Nobody there believed a word he said, though, being policemen, they regarded him with deep suspicion—but there was nothing he could be booked for. Toward evening, after a pretty stormy all-day session, they turned him loose. "Do not leave town!" they told him. "We will get to the bottom of this!" And they detailed a patrolman to go to the fun house with Mr. Fortescue and check up on things.

"Don't go there!" Mr. Fortescue begged when the patrolman in his investigation came to the spot that had swallowed up both Gallagher and O'Banion.

"Why not?" the patrolman asked. "I have orders to get to the bottom of this." And he stepped forward bravely.

He did not vanish, perhaps because he hugged the wall closely. "Come on!" he said, and Mr. Fortescue followed, gingerly, wondering how it would feel to be vanished from human sight. He did not find out; he remained clearly visible—and the incident did not increase the patrolman's confidence in his veracity.

"Where'd you hide the bodies?" the patrolman demanded. "Come clean!"

"There are no bodies," said Mr. Fortescue. "I did not hide them."

There were still no grounds for taking Mr. Fortescue into custody, so (after a few stern stares) the patrolman took his leave.

Mr. Fortescue thereupon went into his office, unlocked the drawers of his desk and had a stiff snort of some genuine Spanish sherry he had been saving to celebrate with.

Celebrate, indeed! What was there to celebrate? He was definitely under police suspicion, and after O'Banion failed to report in, the suspicion would darken to certainty. But could he, Mr. Fortescue, have imagined the whole thing? Certainly not!—he had seen with his own eyes . . . but perhaps now the curse, or what-

ever it was, was off. The patrolman had not vanished . . . nor had Mr. Fortescue . . . Maybe it was safe now . . . maybe his fun house would not have to be ruined . . . Maybe Mureen . . . He had another snort of sherry.

A knock sounded outside, a gentle knock, tremulous . . . "Cops?" whispered Mr. Fortescue. "No," he answered himself, "not cops. They knock heavier." Hoping, but not believing he went to the door. Could it be?

And it was, it was! It was none other than the beautiful Mureen, delightful as a rainbow, as fragrant as a hyacinth, the bloom of her cheek as soft as rose petal—but cold! So cold!

"Mr. Fortescue," she said, "I promised to let you show me your 'fun house'. You may—but only on condition that you behave as a gentleman. For I am a lady," she finished with some sternness.

"I will, Miss Wellesley!" Mr. Fortescue cried, almost whimpering with pleasure and delight at being so near the lovely Mureen. "Enter, I beg of you . . ." But he thought to himself: The green skeleton—when she sees the green skeleton, she will holler, and . . . and . . . maybe . . . throw her arms. . .! Oh Boy!

Every inch a lady, Mureen entered into the dark corridor of the House of Fun, Magic and Mystery. In irreproachable gentlemanly fashion, Mr. Forestecue fol-

lowed. Thoughts of Mureen crowded every other thought from his brain. He forgot Irving Gallagher, he forgot O'Banion, for there was the fragrant presence of Mureen before him. Her light footfalls before him—

An "ulp" sounded from the darkness, a sweetly melodious "ulp", but nevertheless a genuine "ulp". And the light footfalls no longer sounded.

A horrid thought smote Mr. Fortescue. "Mureen!" he shouted in sheer panic. "I mean, Miss Wellesley! Where are you?" There was no answer from the menacing dark. "Hey, Miss Wellesley! Come back!" Mr. Fortescue carried a flashlight for use in emergency, and if ever there was an emergency, this was it. He hauled out the flashlight.

Mureen was gone, vanished. There was no more Mureen.

Weeping, Mr. Fortescue swung about, and stumbled back through the corridor of his now hateful fun house. He raced through the streets, to the office of the architect who had drawn the plans for the House of Fun, Magic and Mystery. He slammed through the door, and glared at the architect, a bright young fellow with ideas, by the name of Floyd Wright.

"Unmanly Fiend!" cried Mr. Fortescue, "what have you done to me?"

"What do you mean, what have I done?" Floyd enquired.

Sobbing, panting, Mr. Fortescue told him.

"Impossible," said Floyd. "It's against reason—"

"No such thing," a new voice broke in. "I will tell you—" The speaker was one Ivan Splasz, a nut. He had recently taken to lounging about in Floyd's office because nobody else could stand him. Floyd just barely could, so he had Splasz in his hair.

Ivan was truly a nut. Some said he was an unfrocked quantum mechanician, but this was incorrect. He had never been frocked. He had taken every course in quantum theory at the university, and had flunked each one. He had argued every inch of the way with every professor who had tried to teach him. Now that Splasz had used up all the courses, with no more to enroll in, he spent his days writing and mimeographing diatribes and screeds, which he distributed to students and faculty at the university.

Dimensional analysis was his field, and he often filled five pages or more, at a time, with what he considered proofs of knavery, cowardice and stupidity in his erstwhile colleagues in quantum theory.

"Dimensionally," Splasz now said, "the speed of light, c, is L per T, length per time. Divide it by wave length, L, to get frequency—and what do you get?"

"Shut up," Floyd told him, un-

folding the plans of the fun house he had designed for Mr. Fortescue. "Don't say another word. Lend me your pencil."

Handing over the pencil, Splasz continued: "You get number, a numeric, per T-not a real dimension in the cgs, the Gaussian, or any other system."

"Now," said Floyd, "we enter, thus, by the front door, and proceed so. Right?" With the borrowed pencil, he traced the route taken by those who had vanished.

"Alas, Mureen!" said Mr. Fortescue softly. "I mean Miss Wel-

leslev."

"Hey!" said Floyd suddenly. "What happened to that pencil? It's gone!"

Ivan Splasz stared at him in cold rage. "What did you do to my solid gold ball point pen?" he demanded. "You have vanished my pen, you and your dimensionally fallacious formulae. Call yourself an architect! Dog-house builder!"

"Be quiet, Ivan," said Floyd.

"Let me think."

Mr. Fortesque spoke in an awed voice. "The same, identical thing happened in the fun house," he said. "One minute here, the next, gone. Only there, it was Mureen," he finished with a sob.

"It is topology," Floyd said. "I must accidentally have made a Moebius Strip. People go round and round, and come out there. Or, it is a Klein Bottle—"

These were excellent explana-

tions—clear, terse and fairly sciquite in character, tific—but, Splasz ignored them. "I have been deriving formulae," he told them. "in my head. I see where you made your blunder. Dimensionally, my good man, your boner is a dilly." Ivan Splasz hauled out the thick black grease pencil that he used for writing defamatory comments in library books on quanmechanics. and scrawled a number of formulae on Floyd Wright's drawing board.

"STOP!" Floyd yelled. "That's my almost finished drawing for the Civic Center Design Con-

test!"

"My boy," said Ivan, "you will thank me for this. You'd be in real trouble if you vanished the mayor and the city council with your dimensionally naive—"

"Mureen!" Mr. Fortescue wailed

softly. "Gone. Vanished."

"—dimensionally naive formulae," Ivan continued. "But I will save you." He added some L's and T's to the already considerable array of Latin, Greek and Hebrew characters. "I will show you how to design in a properly dimensional analytic manner. This," heavily underlining it, "is the differential expression for the point-path. I will now integrate it." He did SO.

Floyd had been watching with only moderate interest, but he suddenly stiffened. "What is c doing in those equations?" He demanded. "The velocity of light, c; I don't need c to design buildings."

"Light . . ." said Ivan Splasz dreamily, a lyrical gleam coming to his eye, ". . . light is all about us. Light from the most distant stars that takes a hundred million million years to reach us. Light by night, and light by day, everywhere there is light, darting, pulsating—and whenever there is light, there is the velocity of light, c. Naturally, I put c in the equations. Design your buildings with c, and you will not design buildings that vanish people."

"Phooey!" said Floyd. "You are indeed a nut."

"And my solid gold ball-point pen," Ivan finished with some venom. "You vanished my ball-point pen. So now I will get it back—with no thanks to you."

Ivan set about snipping a very odd-shaped plane figure from a sheet of Floyd's heavy drafting paper—

"Stop that!" said Floyd. "Paper like that costs plenty!"

Ivan snipped on, paying attention only to what he was doing. He made many measurements, drew lines, erased, redrew them, snipped—but in the end he seemed dubious. "There are two solutions," he said. "I'll try this first, and if it doesn't work—"

Very carefully, he placed a tongue of the paper on Floyd's floor-plan drawing. He moved the tongue toward the place where his ball-point pen had vanished . . . closer . . .

It reached the spot. There was a sort of click, and the end of the paper went fuzzy as though it were trying to vanish. Then the paper tautened in Ivan's hands. He tugged, the paper tugged.

"Help!" he said. "Grab hold!"
Mr. Fortescue and Floyd
grabbed, and pulled—and the end
of the paper came free, back into
the world around us. Its end,
though, was gone . . . a ragged
tear, darkly wet . . . as though
Something with black saliva had
been chewing at it . . .

"The other solution is the right one," said Ivan calmly. Floyd and Mr. Fortescue stared at the wet, chewed end, and at each other. This was fishing in very dark waters indeed! "Mureen!" said Mr. Fortescue. He began to weep softly.

By this time, Ivan had altered his paper dredge in conformity with the second solution—and with better results. The tongue of paper reached the vanishing point, vanished—and, triumphantly, Ivan jerked it back. Behold! clipped to it, was the solid gold ball-point pen, as good as new. Better than new: it had been beautifully polished, and someone Out There had loaded it with a new cartridge of very superior and long-lasting ink, as Ivan learned later.

"There's your pattern" said Ivan. He pushed the snippet of drawing paper toward Floyd. "Scale, the same as your drawing, whatever that is. Use half-inch plywood—"

Floyd's eyes—and those of Mr. Fortescue as well—were glazed by now, and had become somewhat protruding. "Half-inch—?"

"Suit yourself," said Ivan. "Three-quarter inch, if you like. Half-inch, though, would be plenty strong to haul them out."

"Haul them out?" said Mr. Fortescue. His face was blank.

"To haul out the people you vanished into the nonth dimension," Ivan Splasz explained not very patiently.

"The fourth dimension?" Floyd said.

"The nonth dimension!" Ivan said firmly. "Your slap-dash, dimensionally improper, way of figuring inevitably ended up with a dimensionless lay-out. So, naturally, the people—and my ball-point pen!—slipped into a space of no dimension, the nonth dimension. Q E D."

So they built a strange-looking frame out of half-inch plywood because it would be lighter to handle. They loaded it into Floyd's truck, which was painted yellow like the County trucks, and carted it to the House of Fun, Magic and Mystery.

Two patrolmen were stationed at the entrance, assigned to guard

against nobody knew quite what. "Halt!" they said. "Who goes?"

Floyd thought rapidly. "County office," he said. "With a fire escape." He pointed to the contraption.

The patrolmen gazed at Floyd's county-yellow truck, and nodded wisely. "Who's the owner?" they asked.

"I am," Mr. Fortescue assured them.

"Pass," said the patrolmen, stepping aside.

Floyd, Ivan and Mr. Fortescue dragged the so-called fire escape into the fun house, which was lighted now, because the police department had so ordered.

Slowly, awkwardly, they pushed it toward the spot of evanishment. The forward edge of the plywood wavered, grew dim. "Pull!" Ivan yelled, and they pulled manfully.

And out from the nonth dimension came Irving Gallagher, reporter to the DAILY BUGLE, beady-eyed and scribbling madly in his notebook. "I have been there!" he shouted. "I have my own eye-witness exclusive story of the Fourth Dimension!"

"The nonth dimension," Ivan corrected. "What was it like?" he asked with mild interest.

"All green and purple triangles!" cried Irving Gallagher. "Going every which way! And the natives—such weirdies!" He stopped himself, and stared at Splasz. "Say," Gallagher went on slowly,

"What do you want to know for? Trying to steal my scoop?" For an instant he clamped his mouth at Ivan, tight as a geoduck, then said, "Read it when it comes out. 'I Saw the Fourth Dimension', some such title. I'll syndicate it, make a million dollars! Hooray!" He galloped off, yipping with glee from time to time.

"They won't pay anything for that stuff," said Ivan. "And anyhow, it is not the fourth dimension; it's the *nonth*."

"You are likely to see anything in print these days," said Floyd. "He really might make a million from it."

"Mureen!" moaned Mr. Fortescue. "Where are you, Mureen?"

"Be of good cheer," said Floyd. "We'll fish for her next."

But they did not catch Mureen; instead, they caught none other than Inspector Wallace O'Banion. "Stick them up!" the inspector roared, levelling his enormous pistol. "I got you covered."

Then he blinked. "Why," he said. "I know you. I must be back home. Ah, that was a grand place I was in!" He sighed heavily. "Crooks everywhere! Catch them right in the act, burglary, arson, safe-cracking. Stick them up, boys, and snap the cuffs on them! And then right away, another one, as fast as I could nab them! I never saw the likes!"

Then his face fell. "So now it's back to this—one arrest a week, if

I'm lucky. And like as not, the jury turns him loose on me!" He fumbled at his vest pocket. "I seem to be left-handed. I must have got turned around out there . . ." He withdrew the ten-dollar bill that Mr. Fortescue had let him look at. "My ten-spot!" he cried. "It's all backward!"

Indeed, it was now a mirror image of a ten-dollar bill, having been mysteriously reversed (as was also Inspector O'Banion) by contact with the nonth dimension. It was no longer legal tender, it was not even counterfeit legal tender. It had become, instead, a unique numismatic item of almost fabulous value. A beautiful smile stole over O'Banion's fat face. He knew a dealer in such items, and he knew Something about the dealer. He, O'Banion, could realize a great deal of money. . . . "Dough!" breathed the inspector. "Lots of dough!" Grinning, chewing his cigar, the inspector clumped off.

"Mureen!" cried Mr. Fortescue. "Surrounded by those crooks!"

The next victim of the nonth dimension that they rescued was a ghastly surprise. It was a large black cat.

"FIEND!" yelled Mr. Fortescue, beating blindly at Floyd. "You have vilely transformed my beautiful Mureen into a horrid cat!"

"Nonsense," said Ivan Splasz. "This is a tom cat. So, how could it be Mureen?"

The cat regarded them with its yellow eyes, licking at what appeared to be cream on its whiskers. Its fur, they could see, was ruffed up and caked with dried blood. An ear was torn, one eye almost closed—but in the good eye, there was a sparkle . . .

"By jing!" said Floyd. "That cat has been on the town! He's been having a wonderful time Out There. Look at him strut!" Proudly, though with an unsteady roll, the cat departed.

A disquieting thought came to Mr. Fortescue. These people, and the cat, who had been in the nonth dimension all seemed to have found there the sort of heaven that each had wanted. Mureen . . . what had she wanted? What heaven, without Mr. Fortescue, had she found?

She was the next to be rescued (from a fate worse than death? Mr. Fortescue shuddered.) She was even lovelier than he remembered her. Seeing him, she blushed prettily, lowering her shining eyes. She sidled shyly toward him.

"Oh, Tisky," she whispered melodiously. "You naughty, naughty boy!" She patted his cheek.

"Ahoo," said Mr. Fortescue, unable to say more.

Mureen stood on tiptoe, and kissed him on the nose. "That lovely, lovely week!" she whispered in his ear. "That sweet old hotel . . . the white beach . . . the moon . . . yummy!" She nuzzled his neck. "Mmmmmm!"

"But," said Mr. Fortescue, "I was not . . . ah . . ."

"You were wonderful!" she said, "so . . . so . . . And now we had better get married."

"My love!" cried Mr. Fortescue. "My kitten—I mean, my darling!" Married to Mureen—what proud joy, what complete bliss! And she had seemed so cool to him before, so indifferent . . .

Exactly who was it had squired Mureen during that week (less than a day in our familiar third dimension)? Was there a Mr. Fortesque existant in the nonth dimension? One, also, in the first, the second, the fourth and each of the higher dimensions, all identical with the Mr. Fortescue of the third dimension? The mind reels, the teeth chatter; one shivers, thinking of it!

But not Ivan Splasz, Dimensional Analyst. Now, slowly, he began to walk toward the vanishing point.

"Hey, Splasz!" Floyd shouted at him. "Watch your step!"

"I know what I'm doing," said Ivan. "Afterward, you can fish me out with the rig, and you can correct your blunders the way I showed you. First, though, I want to see my nonth dimen—" Splat! And there was no more Ivan Splasz.

Somewhat horror-stricken, Mr.

Fortescue and Floyd pushed the plywood structure almost into place. "Wait, now," said Floyd. "Give him time to look around."

Mureen and Mr. Fortescue waited pleasantly, whispering sweet foolishness at one another, and giggling. Floyd, his back to them, stared into space.

"Now!" said Floyd after a quarter of an hour. "Yo heave!"

Stoutly they hauled—but there was no Ivan on the rig. There was a note, though: "Send me full-dress kit. Swallowtail, size 38. Black pants, size 32, satin stripes up sides. White waistcoat, white shirt, size 15, white tie. Etc. Also send Profs. Gring, Weatherbottom, Litvock and Asst. Prof.

Kropje to watch me get Nobel Prize, the dopes! Make it snappy! King of Sweden here now, waiting. Love, Ivan."

"My word!" said Mr. Fortescue and Floyd, and Mureen said, "Gosh!" They followed Ivan's instructions, but the various professors they did not send.

"Every professor," said Floyd, "dearly wants the Nobel Prize. And Over There people get what they want. There might not be enough Nobel Prizes to go around. They might quarrel."

"I wouldn't quarrel over any old Nobel Prize," said Mureen, snuggling against Mr. Fortescue.

"Me neither," said Mr. Fortescue, snuggling right back.

CORRECTION PLEASE

I have just broken the record for arithmetical errors. In my article FIRST AND REARMOST (October 1964) I showed that the electromagnetic force is 4.2×10^{42} times as strong as the gravitational force. That was correct.

But then I wanted to replace the Sun and Earth by an appropriate mass of electrons and positrons to keep the attraction between them the same, and I divided the mass of both bodies by 4.2×10^{42} . The attraction then depends upon the product of those two masses and that product represents a ratio of $(4.2 \times 10^{42})^2$. What I should have done is to have divided the mass of the Sun and the Earth, each by the square root of 4.2×10^{42} . That would mean we could replace the Sun by 1,000, 000 tons of electrons and the Earth by $3\frac{1}{3}$ tons of positrons. These are still tiny masses astronomically speaking, but they are nowhere near as tiny as the masses I originally gave.

Oh, well, if one juggles big numbers, one occasionally makes big boo-boos.

—Isaac Asimov