



# **One, Two, Three...Infinity: Facts and Speculations of Science**

*George Gamow*

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# One, Two, Three...Infinity: Facts and Speculations of Science

George Gamow

## One, Two, Three...Infinity: Facts and Speculations of Science George Gamow

"... full of intellectual treats and tricks, of whimsy and deep scientific philosophy. It is highbrow entertainment at its best, a teasing challenge to all who aspire to think about the universe." — *New York Herald Tribune*

One of the world's foremost nuclear physicists (celebrated for his theory of radioactive decay, among other accomplishments), George Gamow possessed the unique ability of making the world of science accessible to the general reader.

He brings that ability to bear in this delightful expedition through the problems, pleasures, and puzzles of modern science. Among the topics scrutinized with the author's celebrated good humor and pedagogical prowess are the macrocosm and the microcosm, theory of numbers, relativity of space and time, entropy, genes, atomic structure, nuclear fission, and the origin of the solar system.

In the pages of this book readers grapple with such crucial matters as whether it is possible to bend space, why a rocket shrinks, the "end of the world problem," excursions into the fourth dimension, and a host of other tantalizing topics for the scientifically curious. Brimming with amusing anecdotes and provocative problems, *One Two Three . . . Infinity* also includes over 120 delightful pen-and-ink illustrations by the author, adding another dimension of good-natured charm to these wide-ranging explorations.

Whatever your level of scientific expertise, chances are you'll derive a great deal of pleasure, stimulation, and information from this unusual and imaginative book. It belongs in the library of anyone curious about the wonders of the scientific universe. "In *One Two Three . . . Infinity*, as in his other books, George Gamow succeeds where others fail because of his remarkable ability to combine technical accuracy, choice of material, dignity of expression, and readability." — *Saturday Review of Literature*

## One, Two, Three...Infinity: Facts and Speculations of Science Details

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Genre : Science, Nonfiction, Physics, Mathematics, Philosophy, Popular Science, Classics, Cultural, Russia, Unfinished, Education



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## **From Reader Review One, Two, Three...Infinity: Facts and Speculations of Science for online ebook**

**ahmed kano says**

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## **Nick Black says**

Impulsive acquisition at Borders, 2008-04-08. Dover sure has put out a lot of books recently!

This was better for the insight into Gamow as a scientific author than any of the actual details; anyone who's going to reach for a mid-century perspective on last century's physics from an eccentric Soviet, complete with hand-drawn comic-like illustrations and puns heavily weighted by innuendo, via the Dover Mathematics line -- known best for its republishing of opaque Eastern European textbooks having questionable heritage of copyright and symbolisms/terminologies/semantics whose correlations with modern standards are dicey at best -- is likely looking for the first time into neither quantum mysteries nor relativities. For that purpose, it served moderately well, although I intend to read *My World Line* sometime here and expect that to do better...

## Tahmineh Baradaran says

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**J. Boo says**

I am almost certain I read this when I was a kid, because I'm pretty sure I remember the bit about Hilbert's

hotel.

## **Mohammed-Makram says**

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## **Steven Peterson says**

I happened to look at a book shelf at home, and this cool book from high school and college years caught my eye. It represents one of the classic volumes that made science accessible to lots of people. It also has humor! In discussing relativity theory, George Gamow uses some limericks:

"There was a young fellow named Fisk  
Whose fencing was exceedingly brisk.  
So fast was his action,  
The Fitzgerald contraction  
Reduced his rapier to a disk."

Or, my personal favorite:

"There was a young girl named Miss Bright,  
Who could travel much faster than light.  
She departed one day,  
In an Einsteinian way,  
She came back on the previous night."

Anyhow, the book discusses atoms in a readable manner, the various elements, numbers, Einstein's work, the world of the small (bacteria, light) and the world of the large (the universe and galaxies).

Readable, accessible, with humor injected.

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### **Ben Haley says**

I love laymen science and this is the best I've read. Gamow presents complex subjects with simple analogies and clever cartoons. His science, rivets like a jackhammer, pounding out universal revelations with each new page.

One, Two, Three...Infinity walks us through the worlds of nuclear physics, cosmology, biology, relativity, quantum theory, and astrophysics without skipping a beat. We learn how to measure the height of an oil molecule in a bathtub, the rotation of our milky way with a red shift, and why everything wishes it were silver. Too often, the presentation of real science turns into an imagination's death march into a bleak world of facts and foreign vocabulary. But Gamow keeps it light and by transcending the minutia, makes a reader that floats above it and keeps its value even now, half a decade after its first publication.

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### **Manny says**

Having just read this fine book, closely preceded by the equally excellent *Frontiers of Astronomy* , I'm beginning to feel that the 40s and 50s were not just the Golden Age of science-fiction; they may also have been the Golden Age of popular science writing, a genre which certainly is not unconnected to SF. I have read a fair number of pop science books over the last year, and most of the modern ones are miserably unsatisfying. They are stylistically weak, the authors alternate between patronising you and boring you with anecdotes from their dull lives, and above all the science isn't well done: they can't find good ways to explain abstract concepts in familiar terms, and they fail to distinguish between fact and speculation. A particularly egregious offender is Susskind's *The Cosmic Landscape* , which I read a couple of weeks ago; other typical examples are Hawking ( *The Grand Design* ), Guth ( *The Inflationary Universe* ) and Krauss ( *A Universe from Nothing* ).

Compared with these dull, pompous fantasists, George Gamow is a breath of fresh air. Despite not even being a native speaker of English, he writes better than any of them. He doesn't clutter up the narrative with stories about his personal life, and it's not exactly because he's short of material: he lived through the Russian Revolution and once tried to escape from the Soviet Union in a small boat. And I was impressed to see how many things he got right. He was one of the first people to see that the Big Bang made sense (he made large contributions to the theory), and he explains it well in the final chapter. He comes close to predicting DNA. He does a nice job of covering Relativity in semi-technical terms. And he's got lots of really pretty, original angles on all sorts of scientific and mathematical problems: visualizing the strength of the strong force, seeing the role neutrinos play in causing supernovae, getting an intuitive understanding of what a hypersphere is like.

More than 60 years after its initial publication, this is still a fun read, even if some parts have inevitably been overtaken by more recent discoveries. Check it out and see what pop science *ought* to be like!

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## Sundarraj Kaushik says

Slightly dated book but very well written. I do not have a deep background in physics and so take my review with a little caution.

Covers a variety of topics from simple to complex. Anyone with some background in physics should be able to appreciate the simpler topics. The more complex topics related to relativity and time-space paradigms will need a more erudite reader to understand and appreciate. Having said that some illustrations in the book (the angular shifting of the coordinate system) is the closest I have come to understanding the space-time conundrum.

A good read for students of physics.

**Yasser says**

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## Sanjay Gautam says

*There was a young fellow from Trinity  
Who took  $\sqrt{\infty}$  (square root of infinity)  
But the number of digits  
Gave him the fidgets;  
He dropped Math and took up Divinity.*

There's magic in these pages.

Gamow, one of the greatest physicists of 20th century, whose passion for the maths and science is communicated in this book, whether explaining the wonders of infinite series, or how to locate a hidden pirate's treasure chest using imaginary numbers. The book explains how mathematics and science really work, in a language that a layman can understand. Some chapters of the book are simple enough to be understood by a child, whereas others require some concentration and study to be completely understood. And he doesn't shy away from hardcore mathematics, if needed.

## HIGHLY RECOMMENDED!

## **Sabbir Ahmed says**

*"The time has come," the Walrus said,  
"To talk of many things"...*  
**Lewis Carroll, *Through the looking-glass.***

**Arko says**

A spectacular book on Science written in the 1960s but much ahead of its time, delving into the basics of numbers to fundamental physics , genetics and cosmology( in which the author is a pioneer). Very lucidly explained and quite captivating & it is a treat for an inquisitive reader.

**Sairica says**

George Gamow is the man who predicted that there should be Cosmic Background Radiation (CMB – an afterglow of The Big Bang which would have after billions of years cooled down to about five degrees above absolute zero – noticeable as the sizeable amount of static on your television set before we were blessed with cable), which is one of the major proofs of the Big Bang Theory and which elevated him to the status of one of the greatest Scientists of the 20th Century. (Unfortunately, the man never won a noble prize because I believe he wasn't taken as seriously as he should have been taken, but after his death his prediction was tested as correct!) It is an honour to hear his words through this book and to get a glimpse into his

imagination. This reminds me of a quote by Carl Sagan where he calls Books, the shackles of time. Indeed!

This is one of those books that you wish you had read when you were a kid. At least I do! The book makes me yearn for more and more. Every topic is a new subject and there is always something interesting to look forward to, from riddles and relativity to cool topology tricks (which btw are great ice-breakers!) Never did I feel that Physics could be as wonderful as after reading this marvelous book. He has explained the different kinds of infinities that we are familiar with in each field of study and has done so, beautifully. There aren't enough adjectives to sing in praise of this book.

If you have ever wondered about physical phenomena, then, this is a book for you. However, the book does require a fair bit of an inquisitive attitude towards physical phenomena but the great fact about Gamow is that while he doesn't literally spoon feed you; he makes the concept so simple that with a little bit of effort, you won't have any trouble in reaching the answers, and oh boy, are you going to have some fun while you're at it!

I am forever indebted to Gamow for explaining to me different types of infinities and how to compare them in a way that I shall find difficult to forget even if someone were to hit me on the head with a hammer (in all seriousness that experiment is out of bounds and quite frankly illegal.) The book led me to one of my favourite limericks, one that is on the Fitz Gerald Contraction. (There was a young fellow named, Fisk; Whose fencing was exceedingly brisk; So fast was his action; The Fitz-Gerald contraction; Reduced his rapier to a disk. ~Unknown) It is like an all-in-one drama only here Gamow gives you a glimpse of all the sexy little bits of the different fields of science. There are illustrations for many topics and Gamow is a master at creating wonder and awe for all the different fields.

One thing I will say, though, is that it covered a fair bit of elementary chemistry, something that is hard for me to gulp to this very day. It isn't that I didn't understand the chemistry part but just that I prefer the physics of it all except for possibly the part where he refers you to "Explaining the Atom" (1947) by Selig Hecht –A simple book as far as what one amazon reviewer claims, while explaining the only natural fissionable substance – Uranium 235 found in nature diluted with U-238. Seems interesting, well, as interesting as chemistry will get for me!

Apart from that, the book kept me cooing till the end. The last chapter is absolutely perfect. He ends with who knows what the universe was like before the beginning of the universe as we know it and narrates the reversal of events from possibly death to life. The man's brilliant sense of humour and wit kept me giggling throughout the funny bits. A must read for any nosy parker with an interest in Science.

If you enjoyed this please check out my blog for other reviews:  
<https://sciencemathbookreviews.blogspot.com>

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