



Cosmos

Carl Sagan , Neil deGrasse Tyson (Foreword)

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Cosmos is one of the bestselling science books of all time. In clear-eyed prose, Sagan reveals a jewel-like blue world inhabited by a life form that is just beginning to discover its own identity and to venture into the vast ocean of space. Featuring a new Introduction by Sagan's collaborator, Ann Druyan, full color illustrations, and a new Foreword by astrophysicist Neil deGrasse Tyson, *Cosmos* retraces the fourteen billion years of cosmic evolution that have transformed matter into consciousness, exploring such topics as the origin of life, the human brain, Egyptian hieroglyphics, spacecraft missions, the death of the Sun, the evolution of galaxies, and the forces and individuals who helped to shape modern science.

Praise for *Cosmos*

“Magnificent . . . With a lyrical literary style, and a range that touches almost all aspects of human knowledge, *Cosmos* often seems too good to be true.”—***The Plain Dealer***

“Sagan is an astronomer with one eye on the stars, another on history, and a third—his mind’s—on the human condition.”—***Newsday***

“Brilliant in its scope and provocative in its suggestions . . . shimmers with a sense of wonder.”—***The Miami Herald***

“Sagan dazzles the mind with the miracle of our survival, framed by the stately galaxies of space.”—***Cosmopolitan***

“Enticing . . . iridescent . . . imaginatively illustrated.”—***The New York Times Book Review***

Cosmos Details

Date : Published December 10th 2013 by Ballantine Books (first published 1980)

ISBN : 9780345539434

Author : Carl Sagan , Neil deGrasse Tyson (Foreword)

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Genre : Science, Nonfiction, Astronomy, Physics, History

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From Reader Review Cosmos for online ebook

TS Chan says

Carl Sagan was a good writer. For a scientist, his prose had a literary style that is enjoyable to read, and he injected a sense of philosophy into his passionate account of the origins and marvels of the cosmos.

I do find that the delivery was quite heavy-handed in trying to instill that sense of awe and wonder into the reader. What made it even more so was the narrator whose intonation carries a quality of breathless resonance. The arrangement of the subject matter also seemed a bit haphazard in my view. I couldn't help comparing this book to a favourite of mine - A Short History of Nearly Everything by Bill Bryson which was organised, concise, informative, and very entertaining.

Regardless, Cosmos is still a good primer to read for those who are interested in learning more about the universe and our world before venturing into more recent writings from the likes of Stephen Hawking (may he rest in peace) and Neil deGrasse Tyson.

Z says

Let's put it simply. Cosmos is required reading for everyone who lives on this planet. It will give you a sense of perspective that nothing else can -- no lofty ideology, no omniscient religion, no inspiring quotations can explain things quite as clearly as Carl Sagan's treatise on science, reality, and the nature of things in this universe. Mind-bending and dazzling, and best of all, uncluttered by confusing scientific terminology. A book worthy of all the positive superlatives I can think of bestowing on it.

We have held the peculiar notion that a person or society that is a little different from us, whoever we are, is somehow strange or bizarre, to be distrusted or loathed. Think of the negative connotations of words like alien or outlandish. And yet the monuments and cultures of each of our civilisations merely represent different ways of being human. An extraterrestrial visitor, looking at the differences among human beings and their societies, would find those differences trivial compared to the similarities. The Cosmos may be densely populated with intelligent beings. But the Darwinian lesson is clear: There will be no humans elsewhere. Only here. Only on this small planet. We are a rare as well as an endangered species. Every one of us is, in the cosmic perspective, precious. If a human disagrees with you, let him live. In a hundred billion galaxies, you will not find another.

- Carl Sagan, Cosmos

Esther says

Can I give this one ten stars? If I had a religion, I would be a Carl Saganian. Love him so much.

rahul says

A five stars to this book.

Stars borrowed from skies that I witnessed when I was eight or maybe ten and would wake up early at pre-dawn, because that was the best time for star gazing after all.

To read Mr.Sagan, the words so simple describing the Universe so complex. To read a small passage and follow it up with a sleep filled with dreams of all those stars dying and being born every passing moment. To recall, days of childlike innocence gazing towards the infinite.Gazing in anticipation of recognizing a constellation or an anticipated meteor shower.

To pause while reading and reflect, wonder. To attempt understanding things with closed eyes.

To hear back from the infinite, after all these many years. Because thoughts might after all travel through vacuum.

To think what has been thought centuries ago, but not by you yet.

To take a possibility, and create countless possibilities.

To be curious, to question. To look at things with not just your eyes. To be looked back from an infinite distance, with your own eyes.

To the journeys we could take each night, only if we gave ourselves the chance to.

To Pause.To realize that this moment ephemeral as it is, and only one among a multiple of possible moments,still **IS**.

Duane says

I saw the TV series years before I read the book. I'm glad I did; I was able to project the image and voice of Carl Sagan into the words on the page. If there is a better science related, non-fiction book out there, please, someone point it out to me.

Revised Oct. 2017.

Bettie? says

Re-visit 2016:

1: The Shores of the Cosmic Ocean: After an introduction by Ann Druyan, including the benefits of the end of the Cold War, Carl Sagan opens the program with a description of the cosmos and a "Spaceship of the Imagination" (shaped like a dandelion seed). The ship journeys through the universes' hundred billion galaxies, the Local Group, the Andromeda Galaxy, the Milky Way, the Orion Nebula, our Solar System, and finally the planet Earth. Eratosthenes' attempt to calculate the circumference of Earth leads to a description of the ancient Library of Alexandria. Finally, the "Ages of Science" are described, before pulling back to the full span of the Cosmic Calendar.

2: One Voice in the Cosmic Fugue : Sagan discusses the story of the Heike crab and artificial selection of crabs resembling samurai warriors, as an opening into a larger discussion of evolution through natural selection (and the pitfalls of the theory of intelligent design). Among the topics are the development of life on the Cosmic Calendar and the Cambrian explosion; the function of DNA in growth; genetic replication, repairs, and mutation; the common biochemistry of terrestrial organisms; the creation of the molecules of life in the Miller-Urey experiment; and speculation on alien life (such as life in Jupiter's clouds). In the Cosmos Update ten years later, Sagan remarks on RNA also controlling chemical reactions and reproducing itself and the different roles of comets (potentially carrying organic molecules or causing the Cretaceous--Tertiary extinction event) This episode is worth 6* just on its own

Heaven and Hell: Sagan discusses comets and asteroids as planetary impactors, giving recent examples of the Tunguska event and a lunar impact described by Canterbury monks in 1178. It moves to a description of the environment of Venus, from the previous fantastic theories of people such as Immanuel Velikovsky to the information gained by the Venera landers and its implications for Earth's greenhouse effect. The Cosmos Update highlights the connection to global warming.

1908 Siberia

Tunguska

5: Blues for a red planet: The episode, devoted to the planet Mars, begins with scientific and fictional speculation about the Red Planet during the late nineteenth and early twentieth centuries (H. G. Wells' *The War of the Worlds*, Edgar Rice Burroughs' science fiction books, and Percival Lowell's false vision of canals on Mars). It then moves to Robert Goddard's early experiments in rocket-building, inspired by reading science fiction, and the work by Mars probes, including the Viking, searching for life on Mars. The episode ends with the possibility of the terraforming and colonization of Mars and a Cosmos Update on the relevance of Mars' environment to Earth's and the possibility of a manned mission to Mars.

6: Traveller's Tales: The journeys of the Voyager probes is put in the context of the Netherlands in the seventeenth century, with a centuries-long tradition of sailing ship explorers, and its contemporary thinks (such as Constantijn Huygens and his son Christian). Their discoveries are compared to the Voyager probes' discoveries among the Jovian and Saturn systems. In Cosmos Update, image processing reconstructs Voyager's worlds and Voyager's last portrait of the Solar System as it leaves is shown.

Definitely need an up-to-date version with all that has been discovered since this was published in 1980

Daniella says

I'm not sure what I could possibly say about *Cosmos* that hasn't already been said by countless others in the 28 years since its publication, and likely in a far more intelligent and eloquent way than I ever could. But upon recently reading this book for the first time (which may seem a bit belated, but I am, after all, only 23) it instantly became one of my favorites, a status not easily attained by any book, and so I feel compelled to say something, to expound upon its many virtues and why it has endeared itself to me so completely.

"One glance at [a book:] and you hear the voice of another person--perhaps someone dead for thousands of years. Across the millennia, the author is speaking, clearly and silently, inside your head, directly to you. Writing is perhaps the greatest of human inventions, binding together people, citizens of distant epochs, who

never knew one another. Books break the shackles of time."

Perhaps prophetically, this is exactly the effect the late great Dr. Sagan achieved with this book. Through the power and fluid elegance of his prose, while reading *Cosmos* I could almost hear that familiar and somehow majestic voice (which in large part, I believe, made the PBS miniseries of the same name so wholly entrancing), as if the two of us were old friends having a leisurely, albeit profoundly intellectual, chat over coffee. Not exactly what one might expect from a book largely concerned with science, but this is just one of many qualities that makes it not only endearing to the reader, but also--and perhaps more importantly--accessible, making even the smattering of complex equations seem casual and undaunting.

Aside from the beauty of its prose, which is at times poetic in its depth and its eloquence, *Cosmos* is also wholly engaging and fascinating in the depth and scope of its subjects. Sagan succinctly and expertly covers everything from the birth of stars to the birth of science, the origins of life on Earth to the possibility of life on other planets, and our far distant and recent (in the grand cosmic scheme of things) past to the possibilities for our distant future. And yes, because science is constantly evolving and, as Dr. Sagan states, self-correcting, some of the information and theories covered may now be outdated, but I still believe that *Cosmos* is well worth reading. Not only can it serve as a friendly, accessible, and engrossing jumping-off point for we common folk who are interested in delving deeper into science but may feel a bit intimidated, it is also, if nothing else, worth reading for the beautifully poignant and evocative insights and the oft-philosophical tidbits contained therein.

"We are the local embodiment of the Cosmos grown to self-awareness. We have begun to contemplate our origins: starstuff pondering the stars...."

My only complaints about *Cosmos* are these: the last two or three chapters lag just a bit, incorporating several topics that seem extraneous and unnecessary, and somewhat lose the smooth, easy flow present throughout the rest of the book; and though I feel that, in the current world political climate, the section discussing nuclear arms is still as relevant today as then, I can't help but think that anybody above the age of 12 and possessing a fully-functioning cerebral cortex is already aware of the potential consequences of nuclear war (gamma burst, radiation poisoning, junk in the atmosphere, nuclear winter, death, doom, destruction, we get it already). However, I can concede on this last point that, at the time of publication, the aftermath of a full-scale nuclear war was perhaps still a pretty hot topic. And in the grand scheme, these negative points make up only a negligible fraction of this otherwise fantastic book, and do not in any way detract from its intrinsic value or from its overall enjoyability.

All in all, *Cosmos* is a thoroughly enthralling read that takes you on a breath-taking journey from the inception of the Universe to futures that may never be, and allows us to ponder--when considering our own epic journey from starstuff to "assemblages of a billion billion billion atoms contemplating the evolution of atoms"--what it truly means to be human and what our place, our purpose, is in the vast expanse of "this Cosmos in which we float like a mote of dust in the morning sky".

Joseph says

Science is changing the way we see the universe at a rapid pace. Black holes, gravity waves, Higgs boson, and dark matter were (mathematical) theories a generation ago. Today they are reality. Popular science television shows can teach the public about quantum theory but anything over ten years old is pretty much out of date. How can a publication on general science over thirty-five years out of date be relevant in the

world today? It depends on who and how the story is told. Carl Sagan possessed a quality that was very inclusive. He did not speak down to people or try to show how much smarter he is (unlike another “cosmos” guy) than the general public. He spoke with a sage-like wisdom and in a way that Buddhist monk would speak, but without the riddles -- Here is what I have and I wish to share it with you. Sagan foremost was human and looked at things in a very human way.

The story of science, our understanding of the cosmos, is, of course, our view as humanity. Cosmos covers the beginning of the universe, life on earth, the rise of man, and what man has accomplished. The Library at Alexandria was an ancient high point. It's destruction and the murder of Hypatia a low point. Knowledge was willingly destroyed. Mankind rose and fought discovering science. Man excelled in launching Voyager space probes but failed in the nuclear build up of the Cold War which was still in full force while this book was being written. There is a lament over what could be done if so much wasn't invested in destruction.

Cosmos remains as interesting relevant after thirty-five years and will likely remain relevant in another thirty-five. Cosmos remains a book about science and a book about mankind and his quest for knowledge as well the suppression of knowledge. But, there is hope. As Sagan said:

“The surface of the Earth is the shore of the cosmic ocean. On this shore, we've learned most of what we know. Recently, we've waded a little way out, maybe ankle-deep, and the water seems inviting. Some part of our being knows this is where we came from. We long to return, and we can, because the cosmos is also within us. We're made of star stuff. We are a way for the cosmos to know itself.”

Audiobook read by LaVar Burton (Star Trek TNG and the Reading Rainbow)
Introductions by (and read by) Ann Druyan and Neil deGrasse Tyson

Saud Omar says

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<https://saudomar.wordpress.com>

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Huda Yahya says

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<http://www.youtube.com/playlist?list=...>

Kalliope says

The Star system in GR is absolutely inadequate for rating this book.

Gosh, I should not use the term ‘absolutely’ for something in which everything orbits around relativity.

Anyway, I think something like this would give a better idea of my opinion about this book: my rating is an universe of zillions to the power of zillions of stars, ...and expanding.

My rating:

What a brilliant read this has been. I have read it very slowly; one chapter a week. But what are thirteen weeks in relation to cosmic time? I have also read it in parallel to watching the DVD programs. What a treat this has been to have Carl Sagan in the little and measurable and limited space of my living room, bringing home and explaining to me, the immensity of all that space and dust and gas and light and fire and immeasurable time.

Sagan's mind is truly cosmic, in scope and in outlook. We accompany him as he pulls together history, with the pre-Socratic, the Alexandrians, Leonardo, Kepler and Tycho Brahe, Huygens, Einstein, with the basics of biology and chemistry and physics and astronomy.

I particularly liked his explanation of the effects of Relativity on the light spectrum on board of an Italian Vespa, in a true Pasolini manner. I smiled at the candid StarTreckish nave from which we travel through his half-observed-half-fictional universe. I gasped to see he was using a touch screen to navigate his craft, realizing this would have seemed so fancy back in the early 1980s when Sagan's program and book were all the rage, and which for us is now so irritatingly ubiquitous.

I loved his survey of the Lives of Stars and his anecdote of his first trip to the library as a kid, when upon his request for a book on stars the Librarian gave him a book on Hollywood actors and actresses. Startling are also the simulations in the film version of the encounter of various objects and any given galaxy. Unforgettable.

The contents are primarily a laudable exposition of what he calls the language of the universe--the language of science--, which he deciphers as if he were handling a Rosetta stone of multiple dimensions. But a running argument, and I suspect one motivation behind this wondrous book and program, is his deeply human and humane quest to undo our main enemies: superstition and violence.

Produced during the Cold War, the book seems a mission launched to make us aware of our origins and our circumstances and increase our awareness of the possibilities of self-destruction. His work is an epic from a savior with a cosmic projection.

But the most precious impression I have gathered in this reading is a reminder of how infinitesimally small I am and the inconsequence of my being. But also how, in spite of my own insignificance, how lucky I am to be one more specimen of this wondrous phenomenon of evolution through which a conscience is formed in a strange and extraordinary combination of a few natural elements.

Rather than depressing, I have found this thought heartening.

A reminder that I have to enjoy it while it lasts.

Which means to keep reading books and bask in the knowledge transmitted to me through this wonderful medium, invented by us.

Sagan after all begins and ends his account with the Alexandrian Library.

He understood.

Samadrita says

I wonder what Carl Sagan may have thought of 9/11 and the world in the new millennium, a strife-torn place which is being shaken up and shaken out every moment. I imagine the civil but slightly horrified and slightly bemused tone he may have employed while talking about the Iraq and Afghanistan wars and the antics of the Bush administration which have become such excellent fodder for stand up comedians the world over. And I can almost detect the note of boyish enthusiasm in his voice while he may have spoken of the Higgs Boson and explained the reasons behind the incorrect observation readings of the 'neutrinos being speedier than

light particles' experiment that had made the headlines a few years ago.

I can only imagine because he wasn't there to witness these watershed events and he isn't here to offer comment, criticism or share his inexhaustible repository of knowledge with us any longer. His time in the Cosmos had run out within two decades of the publication of this work - a testament to his own belief in the staggering inferiority of our evanescent lifetimes in the scheme of the universe(s).

"Our familiar universe of galaxies and stars, planets and people, would be a single elementary particle in the next universe up, the first step of another infinite regress."

It would be nice if I could summarize each one of the 13 chapters of 'Cosmos' and give readers the lowdown on our painstakingly slow but rewarding crawl through the fabric of space and time, the civilizational hurdle race towards a finish line which we can neither begin to envision nor fully comprehend yet.

I could write a review in the conventional format, leaving you with a gentle nudge to read this book as soon as you can.

Or, instead, I could simply write about how, despite being more than 30 years outdated, Carl Sagan's voice of reason rings truer than ever, cutting through the heart of all the din and chaos of our troubled times. I could just tell you how Sagan's deep and abiding love for nature and humanity reverberates in every page of this work and how our scientific endeavours across timelines and geographical boundaries, across the unending void which surrounds us on all sides, symbolize our collective pursuit of knowledge.

"There is no other species on Earth that does science. It is, so far, entirely a human invention, evolved by natural selection in the cerebral cortex for one simple reason: it works. It is not perfect. It can be misused. It is only a tool. But it is by far the best tool we have, self-correcting, ongoing, applicable to everything. It has two rules. First: there are no sacred truths; all assumptions must be critically examined; arguments from authority are worthless. Second: whatever is inconsistent with the facts must be discarded or revised."

The Cold War is a now defunct appendage of our history, the Soviet Union is no more, America has achieved a milestone in its race relations by welcoming its first African American President. But turmoil in the world order persists - the nuclear arms race between the Americans and the Soviets has been replaced by a newer dance of dominance in the Asia Pacific region. The world is as much embroiled in a mesh of steadily growing list of challenges as it was in the past, if not more. Preposterous decrees issued by fanatical outfits, blatant human rights violations, infringement on freedom of speech and expression, diplomatic arm-wrestling, the ever-enthusiastic decriers of science, 'War on Women', the shouts of the global-warming deniers reign supreme still. The players may have changed faces but the game of petty one-upmanship in the arena of global politics still continues unabated.

Which is why Sagan's rousing call for all of mankind to unite under the identity of citizens of the *Cosmos* and not as citizens of a nation moves me to the core of my being. His recapitulation of our scientific advancements achieved against the tide of adverse circumstances, of the victories won in the face of persecution by religious authority, impresses upon us a sense of urgency - that with the exponential increase in the defense budgets of the global powers, the incentive given to the greatest minds of our times to devote time and energy to unraveling the mysteries of the Cosmos is reduced. As the concept of 'nuclear deterrence' receives a pat on the back, the global arms sales numbers continuing to soar despite hollow promises of arms control, more and more scientists are being engaged in improving weapons technology rather than validating the fact of our existence against the intimidating presence of the stars, galaxies and universes. The NASA

budget cuts of recent times are proof of this ignominy.

Is it to this end that the ancient advanced cities like Alexandria, the destroyed civilizations of Ionia and the Aztecs and pioneers such as Eratosthenes, Democritus, Aristarchus, Hypatia, Leonardo da Vinci, Copernicus, Galileo, Johannes Kepler, Tycho Brahe, Christiaan Huygens, Issac Newton and Albert Einstein worked tirelessly for? To further intensify mutual national antagonism and increase our probability of complete self-annihilation?

Sagan thinks not.

"Our loyalties are to the species and the planet. We speak for the Earth. Our obligation to survive is owed not just to ourselves but also to that Cosmos, ancient and vast, from which we spring."

This is why I can't help but agree quite heartily with someone who says '*If I had a religion, I would be a Carl Saganian.*'

"If a human disagrees with you, let him live. In a hundred billion galaxies, you will not find another."

If there is only one worldly diktat we must abide by with unquestioning faith, let it be this one.

Mohammed says

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Abubakar Mehdi says

“ The Cosmos is all that is or ever was or ever will be. Our feeblest contemplations of the Cosmos stir us - there is a tingling in the spine, a catch in the voice, a faint sensation, as if a distant memory, of falling from a height. We know we are approaching the greatest of mysteries. ”

With these lines, we hop on Sagan's 'ship of imagination' to visit distant worlds of Quasars, Pulsars, Black holes and Galaxies that are billions of light years away from us. A peak into the Cosmos.

Sagan is a poet-scientist, he uses beautiful metaphors and aphorisms that are never too far from what an ordinary person can grasp. The style is lucid. The knowledge ranges from Mathematics to history, from ancient Greece to NASA. Building on the works of geniuses who introduced us to this fascinating, mind boggling universe of ours.

After giving us a general idea of our ‘cosmic address’, Sagan moves on to Darwin and his discovery of Natural Selection as the engine of Evolution. This has to be one of the finest explanations of Darwinian Natural Selection, where Sagan uses the extra-ordinary example Heike crabs, to demonstrate the strange but beautiful ways in which ‘survival of the fittest’ is manifested. But he doesn’t keep us here for long. After giving the best possible ‘lecture’ on Evolution, he takes us further to see the harmony of the worlds, the planets and how the stars follow fixed patterns that can be mathematically explained; a most singular achievement of humans to have discovered the language of the Nature. Kepler gave us the laws of planetary motion. Laws that not just explained the elliptical orbit of Earth, but inspired a generation of mathematicians and physicists to inquire further into the nature and behaviour of the heavenly bodies.

A world so strange, complex and inaccessible has been made fascinating, understandable and rather accessible by the works of men and women who devoted their lives to Science and Cosmos. A world that is far more rich and awe-inspiring than the meagre and myth-ridden fairytales that we content ourselves with. We settle for too little.

As the book progresses, Sagan's obsession with extra-terrestrial life becomes more and more apparent. He

admits that as a child, he spent hours contemplating about the possibility of intelligent life on other planets. Although our search for intelligent life has been a failure (even on Earth), Sagan aspires to make contact with the dwellers of distant worlds. The possibility of life elsewhere, is not too 'fantastic' altogether. As we observe the immensity of the observable universe, we can be more than certain that life does exist elsewhere but we don't know what it will be like. Space travel and Alien Contact are not stuff of science fiction anymore but a possibility in waiting.

The concluding chapters touch on two matters of colossal significance, namely Nuclear Weapons and Climate Change. These two man-made disasters are a ticking time bomb that can obliterate our species, and we have done precious little to stop them. We are destroying this planet, poisoning our oceans and destroying Specie after specie for centuries now. Man is without a doubt the most deadly predator in the history of Earth Life. And now we are on the path to self-annihilation.

And this book is a wakeup call. A world ridden with ignorance and greed, will need to forego the idiotic bliss of being certain about everything. We don't need good answers to everything, what we need instead are good questions. A good question is often times more educating than its answer. How can we love this world if we are awaiting an apocalypse, how can we love our environment and its safe keepers, the plants and the animals, without recognising that they are our distant cousins. Life, wherever it exists on this planet, is our kin. And we are bullying, butchering and asphyxiating it everywhere. What a shame !

This is the kind of book that we must read and re-read. A book we must gift our children on their 12th birthdays. If you haven't read it yet and you are over 12, do your self a favour and read it.

Because Carl Sagan does more than just educate you about the wonders of Science and the Universe; he makes you fall in love with it.

Lewis Weinstein says

Wonderful perspectives, marvelous photos and drawings, beautifully written ... considers the hugeness of space and the tiniest atom, all connected ... somehow ... Cosmos has stood the test of time (yes, that's a pun) ... I have read several books on this topic in preparation for a course at Oxford on Cosmology ... this is the best
