

Preface

“I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.”

– Isaac Newton

As a child, I grew up in the southern Indian state of Kerala, where the only thing that can come from the sky is the raindrops. However, the year 1979 changed that notion. One of the events I still remember vividly is the falling of Skylab scattering debris across the southern Indian Ocean and sparsely populated western Australia. Weeks before its descent from the orbit, where it had been in action for 6 years, there was mounting speculation over where the spacecraft would come down. My hometown newspaper and the radio had been constantly providing information about Skylab and the consequence of its imminent plunge. Even when people were discussing their gruesome fate in the event of it falling over our hometown, I had only one question in my mind: Why is it coming down?

The local priest in my hometown, as usual, offered a divine explanation linking the plunge of Skylab to the fulfillment of the scriptures and God’s retribution for humankind’s efforts to voyage into space or reach for the stars. He used this opportunity to exhort people to be more faithful, and embrace the holy wisdom that has been on a decline, a sign of apocalypse in his view. Although the neighboring Hindu temple had a special Puja¹ to divert the path of Skylab, not surprisingly the leftists in the state were enthused by the apparent fall of an American spacelab.

The only logical answer, which I partially remember now, came from my brother Abraham Mathew, who was an undergraduate student those days. He tried to explain the fierce competitive space programs Americans and Soviets were engaged in, and this was the result – Americans losing control of their spacelab. Truly, this was a convincing example of how the laws of nature can be characterized by the customs and beliefs of people,

¹ Puja is the act of showing reverence to a God, a spirit, or another aspect of the divine through invocations, prayers, songs, and rituals.

and how it can have a profound impact on the way science is perceived among the different segments of a society.

Nevertheless, it took me many years to fully recognize the fact that the force that pulled down Skylab is the same force that brought down a coconut tree nearby my home a couple of days before this event or, later on, to appreciate the omnipresent force of gravity that creates all the structures of the universe like a cosmic sculpture. Yet, the same force of gravity destroys the very same structures it once made in a never-ending process that has been going on since the beginning. But, this event was an enormous learning experience for me.

As I quoted Newton above, I am still a boy looking at the great ocean of the universe to which we all are linked in many ways. “We are made of star stuff,” said Carl Sagan, and his influential words still resonate in my heart. When my thoughts ponder over the universe, it’s a perfect moment of joy and contentment. However, deeper efforts are needed to know the universe, and that process helps us to know ourselves better.

This book is a collection of 12 essays on different topics that I have written in the past 2 years. This is my earnest effort to share with you the underpinnings of the magnificent cosmos where you and I are given a chance to exist briefly. I have avoided technical jargon and mathematical equations, except where absolutely necessary, to reach readers across the spectrum.

One of the fundamental questions I like to ask myself and in turn share with my readers throughout the book is the meaning of the laws of nature and our ability to comprehend them. To begin to understand, for example, that the force pulling on terrestrial objects is the same as the force that keeps the celestial structures is to understand an unimaginably powerful tool in science.

While modern science is able to answer some of our queries, it also poses many new questions. My approach was to intertwine cosmology and astronomy with philosophy and mythology, as these seemingly different schemes of thoughts provide a stimulating intellectual exercise.

I have to confess that the tenets of religion and mythology cannot fit into the rational and coherent framework of science; yet, the fundamental questions posed in any stage of human evolution are reflective of our curiosity at large.

Why do we seek answers or ask questions?

Some would argue that many cosmological studies transcend any practical purposes. True, but our species is distinct from any other because of our ability to ask questions and think beyond mere survival and procreation. Practical purposes change from time to time, not the fundamental science. We are here, it seems, to know our universe and thus ourselves better.

We live in an exciting time where our world is changing rapidly. Our scientific voyage is becoming more and more intriguing, where the minute particles such as the Higgs boson and the planets beyond our Solar System are no longer just pure dreams. Armed with imagination and curiosity, our species is on a journey that, I consider, is more enjoyable than the destination. This book is an attempt to join that great scientific expedition, and I hope you will be part of that journey along with me.

I believe that this book will mark a tiny footprint on the vast sand of space and time even as our sublime lives depart to become part of the grand cosmos.

I hope that you enjoy reading it.

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