

PREFACE

“In the beginning,” he said, “exactly fifteen point two billion years ago, there was a Big Bang and the Universe--”

**I had stopped writing. “Fifteen billion years ago?” I said
incredulously.**

“Absolutely,” he said. “I’m inspired.”

Isaac Asimov (1979)

**We are all, each in our own way, seekers of the truth and we each
long for an answer to why we are here.**

Brian Greene (1999)

I wanted to understand how the universe began.

Stephen Hawking (2001)

**For the first time in the history of science, we have at least a chance
of putting together a sensible theory of time and the evolution of the
universe.**

Sean Carroll (2010)

**The Big Bang model ... says nothing about what banged, why it
banged or what happened before it banged.**

Manjit Kumar (2012)

It is the ultimate mystery. Humankind has long sought the answer, maybe since the dawn of thought.

Is an answer within reach? Some say there was no beginning. In 1927, Bertrand Russell says, ‘There is no reason to suppose that the world had a beginning at all. The idea that things must have a beginning is really due to the poverty of our imagination.’ Really? When he says this, concepts of the cosmos are a speculative sinkhole. But soon science says he’s wrong: There *was* some sort of a beginning. How can science say so? It unleashes a tsunami of new evidence, a picture from a moment nearly 14 billion years ago. Suddenly we can see that far back in time! The picture shows the *Big Flash*, light let loose as space becomes transparent. It shows the universe when it’s an infant, less than 400,000 years old. Before the Big Flash, space was as opaque as thick lead bricks so the beginning is forever hidden from our view.

The fact that the universe began with a Big Bang is widely known. It’s also wrong. The Big Bang model describes how the early universe’s dense, hot matter expands and cools. That is, it shows what happened *after* the beginning. It pre-

dicts things that we see today. Most physicists think something like it happened. But whatever happened, they know that the Big Bang's *not* how it began. Why not? Because it doesn't say how it *got* to be dense and hot. Thanks mostly to this model, cosmologists believe they know how the whole universe evolved through all the years that followed its first fraction of a second. But this makes it all the more surprising that they don't know how it began. It's not that they have *no* idea—they have lots; but so far none that hang together.

This book takes a new approach: It follows a fictional detective and his sidekick. Their job is to untangle clues and work out what went on. They're not always a happy team. But as they struggle on they find there's lots of evidence.

Every fictional detective knows that he or she is to make sense of *all* the clues. But scientists, says Edward Wilson, do not look at the big picture; they must focus on their bit of it or they get left behind. This book is all big picture. It aims to discover how the universe began and cast new light upon the mystery of our existence. The fiction's aimed at being helpful in discovering what's real. Through ancient puzzles and more recent revelations there are many twists and turns. The key to keeping track is this: Just follow the detective. He defies the odds and finds a simple answer. How will readers know it's true? Well, as in all detective stories, it explains so many things that once seemed inexplicable.

Here, dear reader, please be warned. You are entering a world that needs novel ways of thinking. It may change your view of what is real. Few of its elements are new and many of them netted Nobel prizes but here they coalesce into a radical new vision, a universe that's beautiful (a word with special meaning for philosophy and physics) and singularly simple. Readers can acquire what Infeld calls the greatest pleasure—understanding.

The book has many quotes, some before each chapter, others in the text. They are integral to the story. And on the website there's a Cast of Characters (the players in this drama of the Modern Age), a Glossary of Terms (shown in *Italics* upon first use in the text and with a Capital thereafter), and much more information. Links (and of course Web searches) lead to other aspects so the reader is invited: Check it out.