The purpose of this chapter is to distill, into about twelve thousand words, the results of many thousands of hours of research and millions of words of publications. This extensive body of work, summarized here, has been carried out by numerous scientific specialists of the cosmos, the Earth, and the plants and animals that have lived on Earth. The intent is to emphasize that the current status of humanity on this planet has occurred only through operation of physical laws of the universe. Furthermore, the recognition that humankind achieved its wondrous development out of the singularity that, billions of years ago, was the entire universe compressed into a single ball of enormous energy, may help provide an understanding of the sacred. This exposition is preceded by a discussion of myths of creation that prescientific cultures devised.

Humankind’s Longstanding Curiosity

Among the celestial objects that can be seen without a telescope, our sun and moon are the most obvious. The sun cannot be stared at for very long with the naked eye. (In fact, “staring at the sun” has been used as an analogy to discussing death; see Chapter 3.) We can easily look at the moon, however, and wonder what is happening on our nearest celestial neighbor.

Many years ago, soon after sunset, a little boy asked his father, “Who turned the light on in the moon?” He was curious about the
fact that, in the daytime, the moon appears pasty white, while at
night it appears luminous. This change from day to night seemed
similar to his experience looking at a window shade from the street.
In the daytime, a white shade drawn behind a window appears
pasty like the moon, whereas at night, if a light is turned on in
the room, the luminosity can be seen through a translucent shade.
Analogizing, as reported in this example, may be a hallmark of
human intelligence.

The little boy who asked about the moon’s luminosity was not
aware that the phenomenon had been investigated by researchers a
very long time ago. Among those individuals in ancient times who
studied the issue were the Greek philosopher Anaxagoras (fifth cen-
tury BCE), Chinese astronomers of the Han dynasty (second century
BCE), and an Indian astronomer, Aryabhata (fifth century CE). Each
of them separately concluded that the moon shines with the reflected
light of the sun but, during the day, the luminosity is masked by the
ambient light.

George Smoot (b. 1945), as a child, was similarly curious about
the moon. He noted, while driving with his parents, that regard-
less of how the car turned, the moon seemed to keep following
them. His parents gave young George a simplified explanation of
this condition, which only further fired his imagination. Smoot
continued with his interest and expanded it, eventually earning a
PhD in astrophysics and the 2006 Nobel Prize in physics. Some of
his work is cited below.

**Creation Myths**

The creation myth of Judaism, briefly discussed in Chapter 1,
is written in Genesis 1 and 2 of the Hebrew Bible. It was later
adopted by Christianity. The myth continues, to this day, to be
defended by some fundamentalist churches as a true presentation
of the founding of the world. We do not typically refer to our reli-
gion as myth. However, a statement by researcher of myths Joseph
Campbell (1904–87), reported in *Thou Art That: Transforming
Religious Metaphor* (2001), is highly pertinent at this point. That
book, a compendium of some previously unpublished writings and