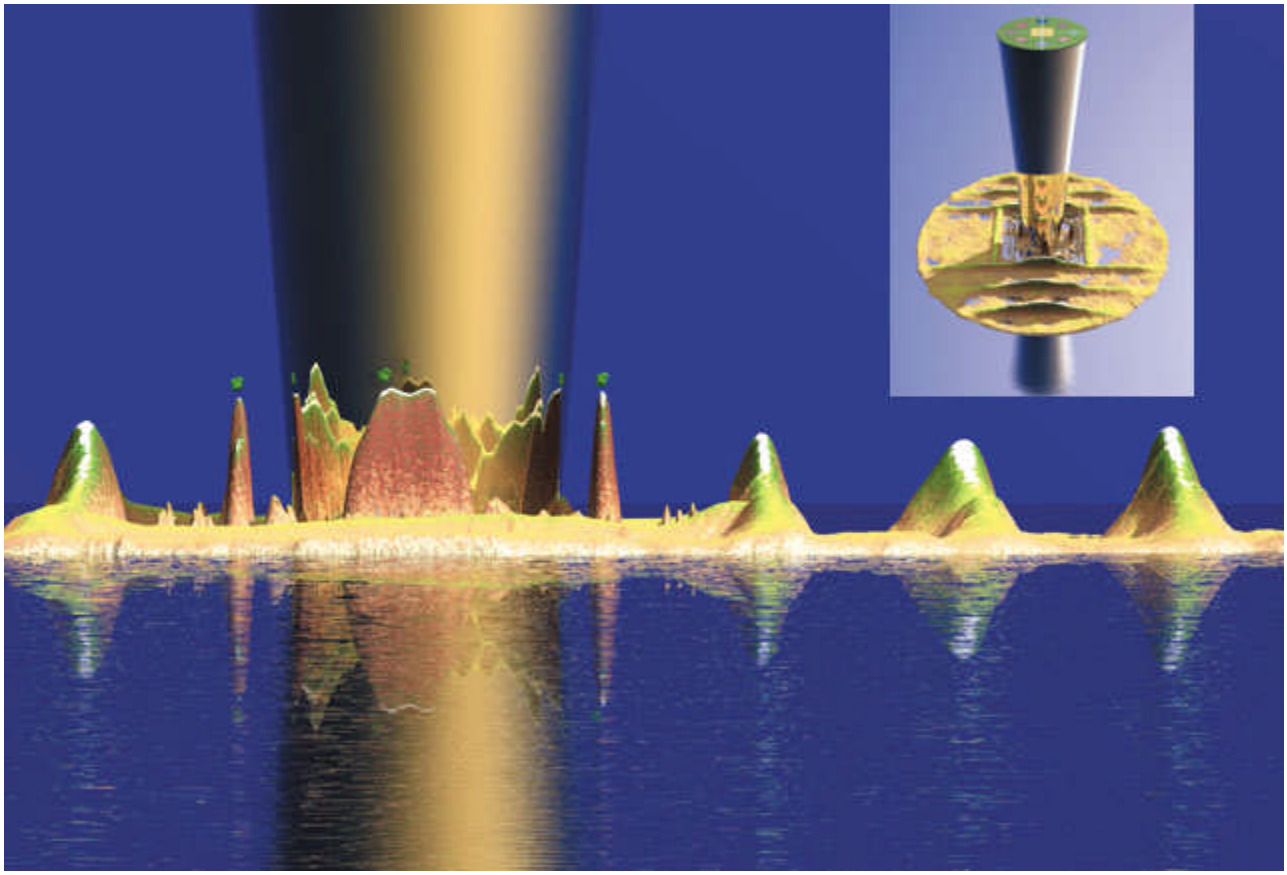
# Mysteries of the Sacred Universe

The Cosmology of the Bhagavata Purana

Richard L. Thompson

## An Overview


*The inquisitive human mind naturally yearns to understand the universe and man's place within it. Today scientists rely on powerful telescopes and sophisticated computers to formulate cosmological theories. In former times, people got their information from traditional books of wisdom. Followers of India's ancient culture, for example, learned about the cosmos from scriptures like the* Srimad-Bhagavatam, *or* Bhagavata Purana. *But the* Bhagavatam's *descriptions of the universe often baffle modern students of Vedic literature. Here Bhaktivedanta Institute scientist Dr. Richard Thompson suggests a framework for understanding the* Bhagavatam's *descriptions that squares with our experience and modern discoveries.*



Jambudvipa: The *Srimad-Bhagavatam* describes that the universe lies within a series of spherical shells which is divided in two by an earth plane called Bhu-mandala. A series of *dvipas,* or ‘islands,’ and oceans make up Bhu-mandala. In the center of Bhu-mandala is the circular ‘island’ of Jambudvipa (inset), whose most prominent feature is the cone-shaped Mount Meru. The main illustration here shows a closer view of Jambudvipa and the base of Mount Meru.

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The *Srimad-Bhagavatam* presents an earth-centered conception of the cosmos. At first glance the cosmology seems foreign, but a closer look reveals that not only does the cosmology of the*Bhagavatam* describe the world of our experience, but it also presents a much larger and more complete cosmological picture. I’ll explain.

The *Srimad-Bhagavatam’s* mode of presentation is very different from the familiar modern approach. Although the *Bhagavatam’s* "Earth" (disk-shaped Bhu-mandala) may look unrealistic, careful study shows that the *Bhagavatam* uses Bhu-mandala to represent at least four reasonable and consistent models:
(1) a polar-projection map of the Earth globe, (2) a map of the solar system, (3) a topographical map of south-central Asia, and (4) a map of the celestial realm of the demigods.

Caitanya Mahaprabhu remarked, "In every verse of *Srimad-Bhagavatam* and in every syllable, there are various meanings." (*Caitanya-caritamrita, Madhya* 24.318) This appears to be true, in particular, of the cosmological section of the *Bhagavatam,* and it is interesting to see how we can bring out and clarify some of the meanings with reference to modern astronomy.

Figure 1

Figure 2

When one structure is used to represent several things in a composite map, there are bound to be contradictions. But these do not cause a problem if we understand the underlying intent. We can draw a parallel with medieval paintings portraying several parts of a story in one composition. For example, Masaccio's painting "The Tribute Money" (Figure 1) shows Saint Peter in three parts of a Biblical story. We see him taking a coin from a fish, speaking to Jesus, and paying a tax collector. From a literal standpoint it is contradictory to have Saint Peter doing three things at once, yet each phase of the Biblical story makes sense in its own context.

A similar painting from India (Figure 2) shows three parts of a story about Krishna. Such paintings contain apparent contradictions, such as images of one character in different places, but a person who understands the story line will not be disturbed by this. The same is true of the *Bhagavatam,* which uses one model to represent different features of the cosmos.

## The Bhagavatam Picture at First Glance

The Fifth Canto of the *Srimad-Bhagavatam* tells of innumerable universes. Each one is contained in a spherical shell surrounded by layers of elemental matter that mark the boundary between mundane space and the unlimited spiritual world.

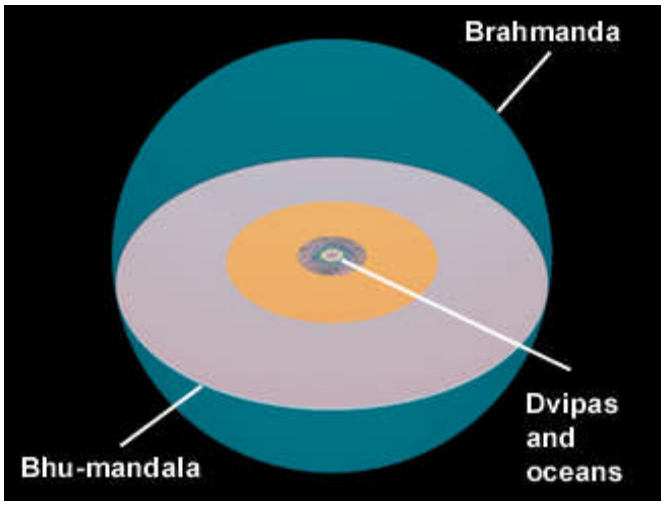



Figure 3

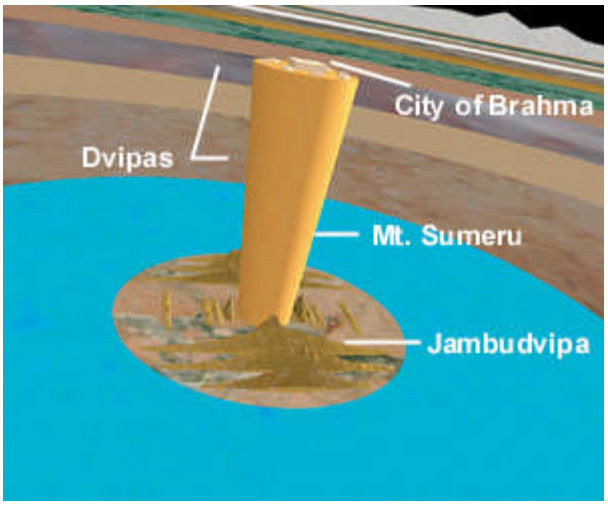



Figure 4

The region within the shell (Figure 3) is called the Brahmanda, or "Brahma egg." It contains an earth disk or plane—called Bhu-mandala—that divides it into an upper, heavenly half and a subterranean half, filled with water. Bhu-mandala is divided into a series of geographic features, traditionally called *dvipas,* or "islands," *varshas,* or "regions," and oceans.

In the center of Bhu-mandala (Figure 4) is the circular "island" of Jambudvipa, with nine *varsha* subdivisions. These include Bharata-varsha, which can be understood in one sense as India and in another as the total area inhabited by human beings. In the center of Jambudvipa stands the cone-shaped Sumeru Mountain, which represents the world axis and is surmounted by the city of Brahma, the universal creator.

To any modern, educated person, this sounds like science fiction. But is it? Let's consider the four ways of seeing the *Bhagavatam's* descriptions of the Bhu-mandala.

## (1) Bhu-mandala as a Polar Projection of the Earth Globe

We begin by discussing the interpretation of Bhu-mandala as a planisphere, or a polar-projection map of the Earth globe. This is the first model given by the *Bhagavatam.* A stereographic projection is an ancient method of mapping points on the surface of a sphere to points on a plane. We can use this method to map a modern Earth globe onto a plane, and the resulting flat projection is called a planisphere (Figure 5). We can likewise view Bhu-mandala as a stereographic projection of a globe (Figure 6).

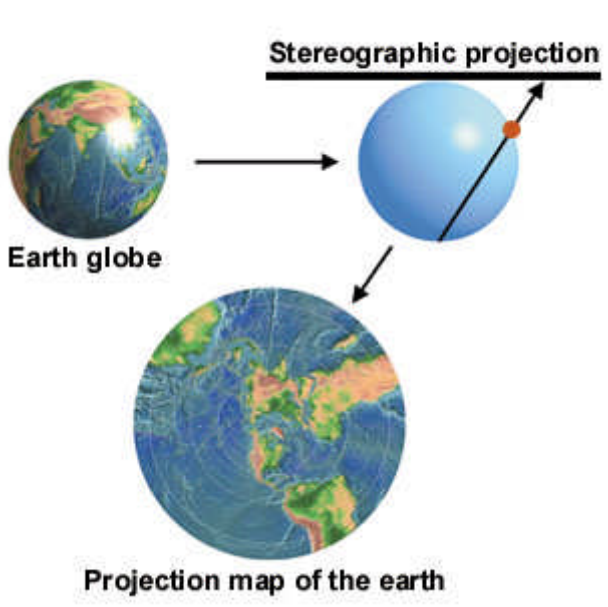



Figure 5

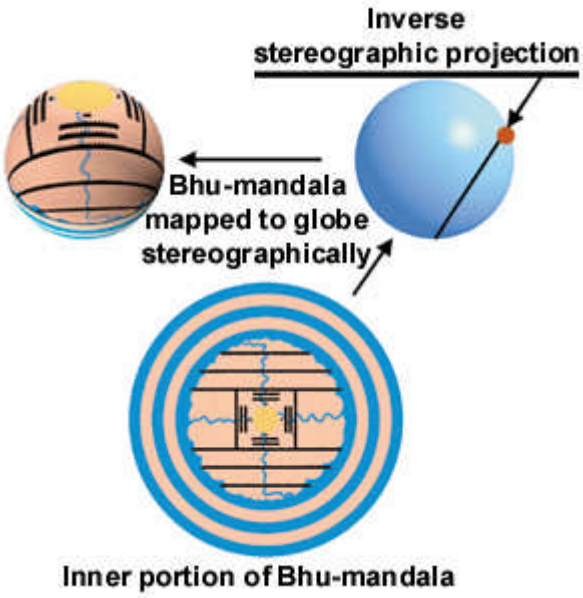



Figure 6

In India such globes exist. In the example shown here (Figure 7), the land area between the equator and the mountain arc is Bharata-varsha, corresponding to greater India. India is well represented, but apart from a few references to neighboring places, this globe does not give a realistic map of the Earth. Its purpose was astronomical, rather than geographical.

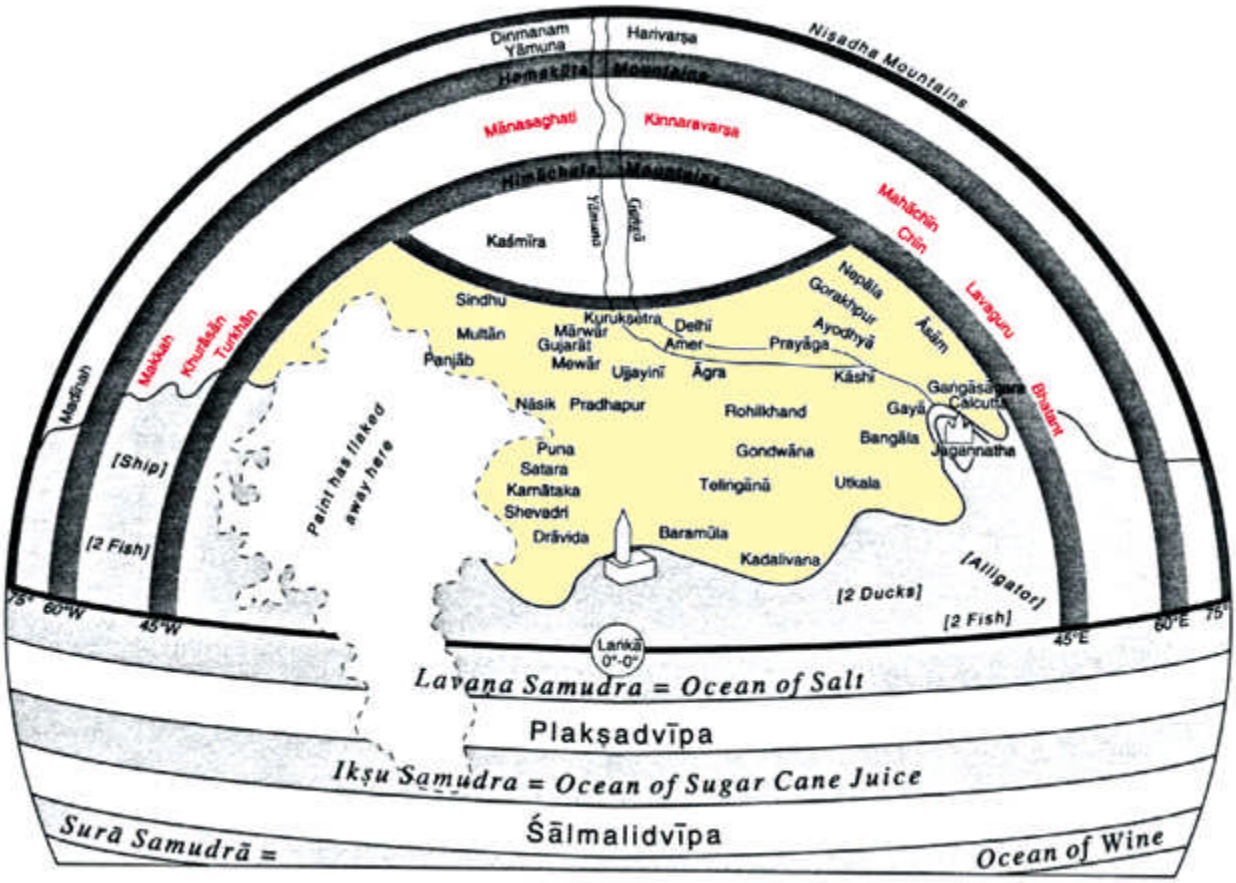



Figure 7

Although the *Bhagavatam* doesn't explicitly describe the Earth as a globe, it does so indirectly. For example, it points out that night prevails diametrically opposite to a point where it is day. Likewise, the sun sets at a point opposite where it rises. Therefore, the *Bhagavatam* does not present the naive view that the Earth is flat.

We can compare Bhu-mandala with an astronomical instrument called an astrolabe, popular in the Middle Ages. On the astrolabe, an off-centered circle represents the orbit of the sun—the ecliptic. The Earth is represented in stereographic projection on a flat plate, called the mater. The ecliptic circle and important stars are represented on another plate, called the rete. Different planetary orbits could likewise be represented by different plates, and these would be seen projected onto the Earth plate when one looks down on the instrument.

The *Bhagavatam* similarly presents the orbits of the sun, the moon, planets, and important stars on a series of planes parallel to Bhu-mandala.

Seeing Bhu-mandala as a polar projection is one example of how it doesn't represent a flat Earth.

## (2) Bhu-mandala as a Map of the Solar System

Here's another way to look at Bhu-mandala that also shows that it's not a flat-Earth model.

Descriptions of Bhu-mandala have features that identify it as a model of the solar system. In the previous section I interpreted Bhu-mandala as a planisphere map. But now, we'll take it as a literal plane. When we do this, it looks at first like we're back to the naive flat Earth, with the bowl of the sky above and the underworld below.

The scholars Giorgio de Santillana and Hertha von Dechend carried out an intensive study of myths and traditions and concluded that the so-called flat Earth of ancient times originally represented the plane of the ecliptic (the orbit of the sun) and not the Earth on which we stand. Later on, according to de Santillana and von Dechend, the original cosmic understanding of the earth was apparently lost, and the Earth beneath our feet was taken literally as a flat plate. In India, the earth of the *Puranas* has often been taken as literally flat. But the details given in the *Bhagavatam* show that its cosmology is much more sophisticated.

Not only does the *Bhagavatam* use the ecliptic model, but it turns out that the disk of Bhu-mandala corresponds in some detail to the solar system (Figure 8). The solar system is nearly flat. The sun, the moon, and the five traditionally known planets—Mercury through Saturn—all orbit nearly in the ecliptic plane. Thus Bhu-mandala does refer to something flat, but it's not the Earth.

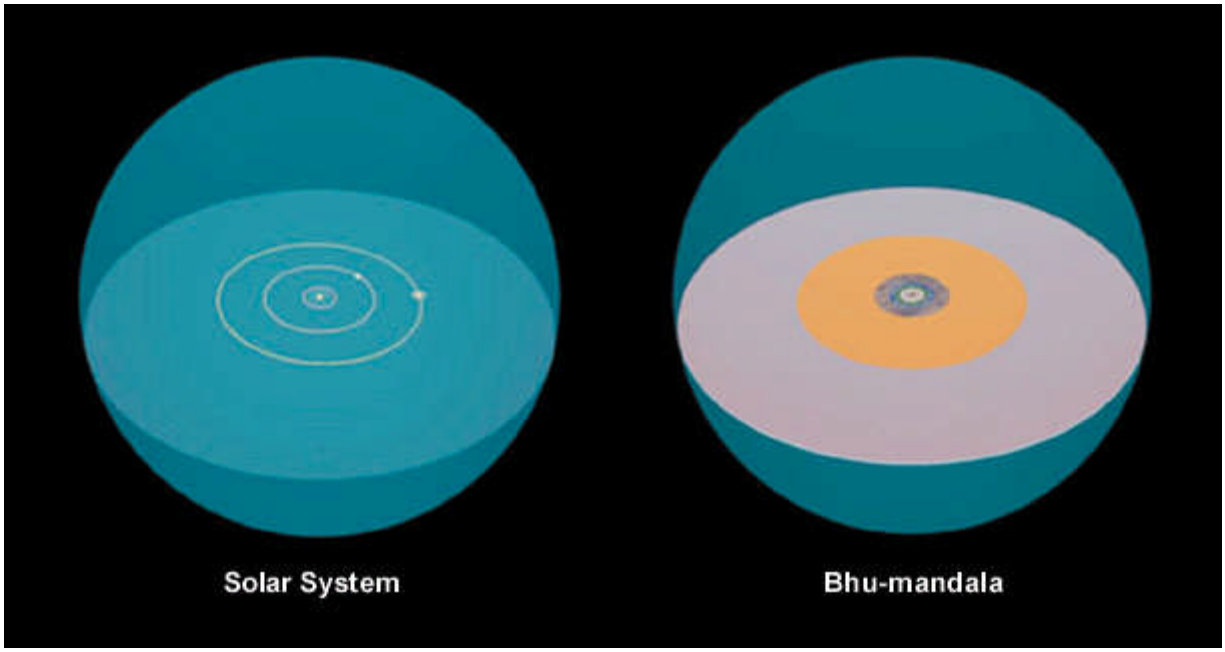


Figure 8

One striking feature of the *Bhagavatam's* descriptions has to do with size. If we compare Bhu-mandala with the Earth, the solar system out to Saturn, and the Milky Way galaxy, Bhu-mandala matches the solar system closely, while radically differing in size from Earth and the galaxy.

Furthermore, the structures of Bhu-mandala correspond with the planetary orbits of the solar system (Figure 9).

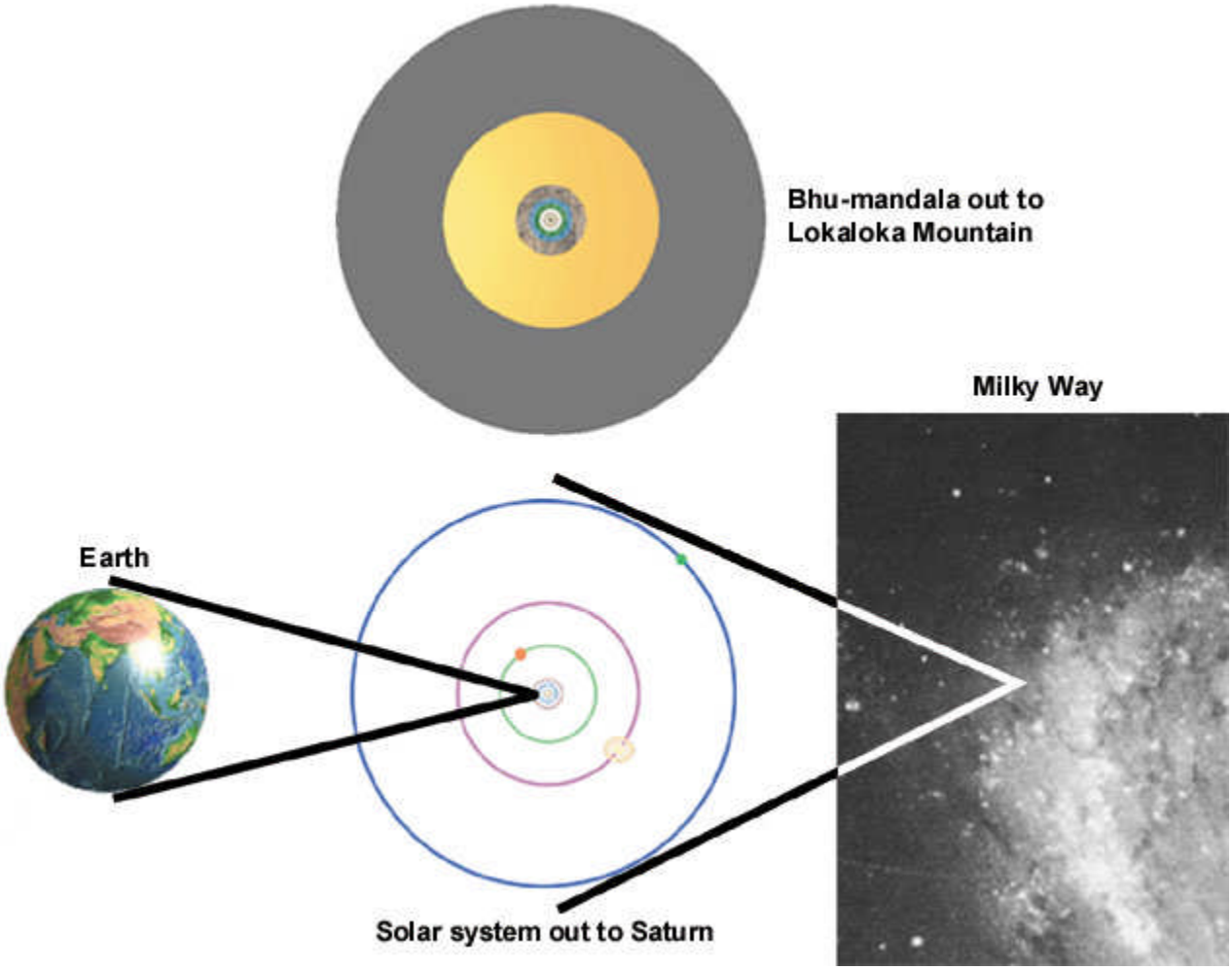
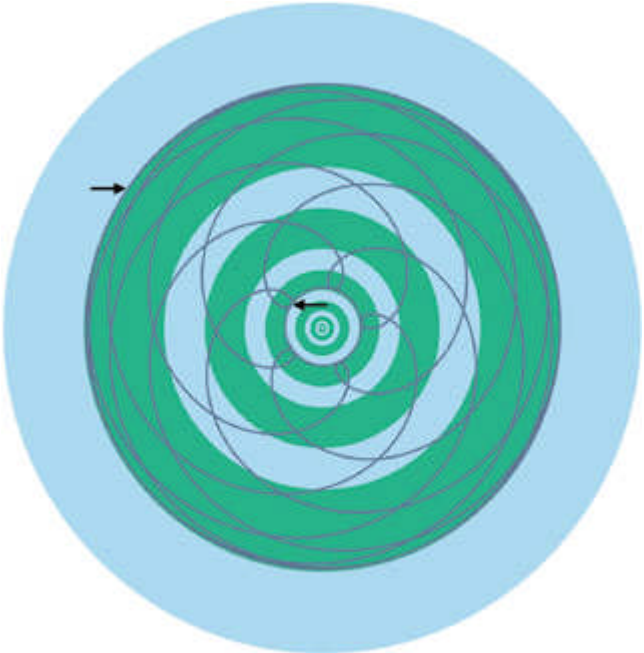



Figure 9

Figure 10



If we compare the rings of Bhu-mandala with the orbits of Mercury, Venus (Figure 10), Mars, Jupiter, and Saturn, we find several close alignments that give weight to the hypothesis that Bhu-mandala was deliberately designed as a map of the solar system.

Until recent times, astronomers generally underestimated the distance from the earth to the sun. In particular, Claudius Ptolemy, the greatest astronomer of classical antiquity, seriously underestimated the Earth-sun distance and the size of the solar system. It is remarkable, therefore, that the dimensions of Bhu-mandala in the *Bhagavatam* are consistent with modern data on the size of the sun's orbit and the solar system as a whole.

[See BTG, Nov./Dec. 1997.]

## (3) Jambudvipa as a Topographical Map of South-Central Asia

Jambudvipa, the central hub of Bhu-mandala, can be understood as a local topographical map of part of south-central Asia. This is the third of the four interpretations of Bhu-mandala. In the planisphere interpretation, Jambudvipa represents the northern hemisphere of the Earth globe. But the detailed geographic features of Jambudvipa do not match the geography of the northern hemisphere. They do, however, match part of the Earth.

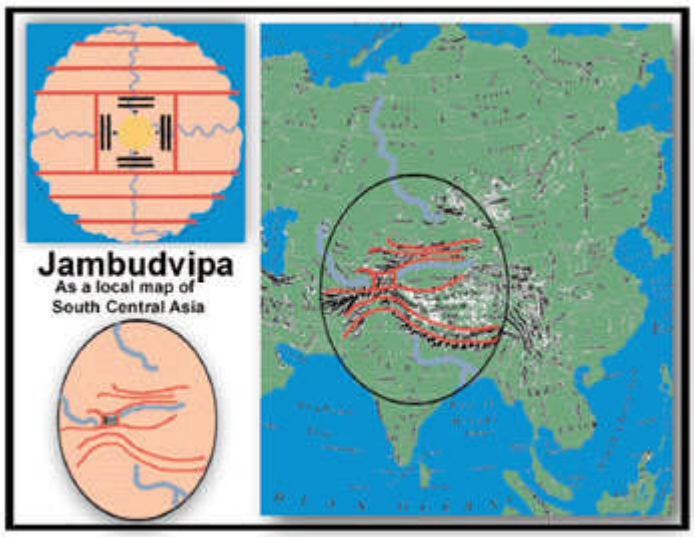



Figure 11

Six horizontal and two vertical mountain chains divide Jambudvipa into nine regions, or *varshas*(Figure 11). The southernmost region is called Bharata-varsha. Careful study shows that this map corresponds to India plus adjoining areas of south-central Asia. The first step in making this identification is to observe that the *Bhagavatam* assigns many rivers in India to Bharata-varsha. Thus Bharata-varsha represents India. The same can be said of many mountains in Bharata-varsha. In particular, the *Bhagavatam* places the Himalayas to the north of Bharata-varsha in Jambudvipa (Figure 11).

A detailed study of Puranic accounts allows the other mountain ranges of Jambudvipa to be identified with mountain ranges in the region north of India. Although this region includes some of the most desolate and mountainous country in the world, it was nonetheless important in ancient times. For example, the famous Silk Road passes through this region. The Pamir mountains can be identified with Mount Meru and Ilavrita-varsha, the square region in the center of Jambudvipa. (Note that Mount Meru does not represent the polar axis in this interpretation.)

Other *Puranas* give more geographical details that support this interpretation.

## (4) Bhu-mandala as a Map of the Celestial Realm of the Devas

We can also understand Bhu-mandala as a map of the celestial realm of the demigods, or *devas.* One curious feature of Jambudvipa is that the *Bhagavatam* describes all of the *varshas* other than Bharata-varsha as heavenly realms, where the inhabitants live for ten thousand years without suffering. This has led some scholars to suppose that Indians used to imagine foreign lands as celestial paradises. But the *Bhagavatam* does refer to barbaric peoples outside India, such as Huns, Greeks, Turks, and Mongolians, who were hardly thought to live in paradise. One way around this is to suppose that Bharata-varsha includes the entire Earth globe, while the other eight *varshas* refer to celestial realms outside the Earth. This is a common understanding in India.

But the simplest explanation for the heavenly features of Jambudvipa is that Bhu-mandala was also intended to represent the realm of the *devas.* Like the other interpretations we have considered, this one is based on a group of mutually consistent points in the cosmology of the *Bhagavatam.*

First of all, consider the very large sizes of mountains and land areas in Jambudvipa. For example, India is said to be 72,000 miles (9,000 *yojanas*) from north to south, or nearly three times the circumference of the Earth. Likewise, the Himalayas are said to be 80,000 miles high.

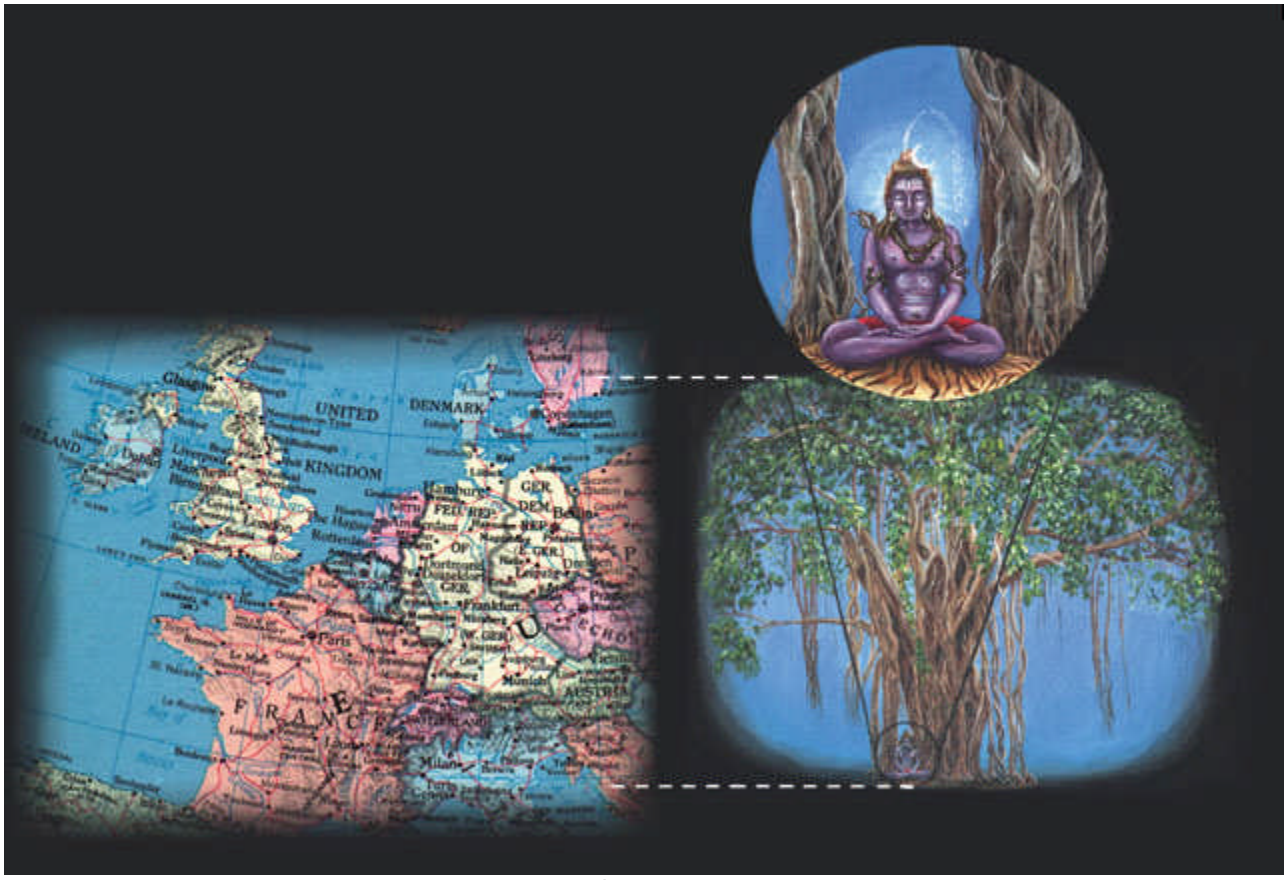



Figure 12

People in India in ancient times used to go in pilgrimage on foot from one end of India to the other, so they knew how large India is. Why does the *Bhagavatam* give such unrealistic distances? The answer is that Jambudvipa doubles as a model of the heavenly realm, in which everything is on a superhuman scale. The *Bhagavatam* portrays the demigods and other divine beings that inhabit this realm to be correspondingly large. Figure 12 shows Lord Siva in comparison with Europe, according to one text of the *Bhagavatam.*

Figure 13

Why would the *Bhagavatam* describe Jambudvipa as both part of the earth and part of the celestial realm? Because there's a connection between the two. To understand, let's consider the idea of parallel worlds.

By *siddhis,* or mystic perfections, one can take shortcuts across space. This is illustrated by a story from the *Bhagavatam* in which the mystic yogini Citralekha abducts Aniruddha from his bed in Dvaraka and transports him mystically to a distant city (Figure 13).

Besides moving from one place to another in ordinary space, the mystic *siddhis* enable one to travel in the all-pervading ether or to enter another continuum. The classical example of a parallel continuum is Krishna's transcendental realm of Vrindavana, said to be unlimitedly expansive and to exist in parallel to the finite, earthly Vrindavana in India.

The Sanskrit literature abounds with stories of parallel worlds. For example, the *Mahabharata* tells the story of how the Naga princess Ulupi abducted Arjuna while he was bathing in the Ganges River (Figure 14). Ulupi pulled Arjuna down not to the riverbed, as we would expect, but into the kingdom of the Nagas (celestial snakelike beings), which exists in another dimension.

Figure 14

Mystical travel explains how the worlds of the *devas* are connected with our world. In particular, it explains how Jambudvipa, as a celestial realm of *devas,* is connected with Jambudvipa as the Earth or part of the Earth. Thus the double model of Jambudvipa makes sense in terms of the Puranic understanding of the*siddhis.*

**Concluding Observations:**

**The Vertical Dimension in Bhagavata Cosmology**

For centuries the cosmology of the *Bhagavatam* has seemed incomprehensible to most observers, encouraging many people either to summarily reject it or to accept it literally with unquestioning faith. If we take it literally, the cosmology of the *Bhagavatam* not only differs from modern astronomy, but, more important, it also suffers from internal contradictions and violations of common sense. These very contradictions, however, point the way to a different understanding of *Bhagavata*cosmology in which it emerges as a deep and scientifically sophisticated system of thought. The contradictions show that they are caused by overlapping self-consistent interpretations that use the same textual elements to expound different ideas.

Each of the four interpretations I've presented deserves to be taken seriously because each is supported by many points in the text that are consistent with one another while agreeing with modern astronomy. I've applied the context-sensitive or multiple-aspect approach, in which the same subject has different meanings in different contexts. This approach allows for the greatest amount of information to be stored in a picture or text, reducing the work required by the artist or writer. At the same time, it means that the work cannot be taken literally as a one-to-one model of reality, and it requires the viewer or reader to understand the different relevant contexts. This can be difficult when knowledge of context is lost over long periods of time.

In the *Bhavagatam,* the context-sensitive approach was rendered particularly appropriate by the conviction that reality, in the ultimate issue, is *avak-manasam,* or beyond the reach of the mundane mind or words. This implies that a literal, one-to-one model of reality is unattainable, and so one may as well pack as much meaning as possible into a necessarily incomplete description of the universe. The cosmology of the *Bhagavata Purana* is a sophisticated system of thought, with multiple layers of meaning, both physical and metaphysical. It combines practical understanding of astronomy with spiritual conceptions to produce a meaningful picture of the universe and reality.

*Richard L. Thompson earned his Ph.D. in mathematics from Cornell University. He is the author of several books, of which* Mysteries of the Sacred Universe *is the most recent.*