

The Teachings of the Purāṇas and Modern Science in Indian Knowledge System: A Review

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Abstract

Indian Knowledge System (Infra) is a compilation of traditional wisdom, comprising great variety and being a compilation of science, philosophy, ethics and spirituality. In this context, the importance of the Puranas as such a continuation of the cultural memory, the order of the world, and the moral guidance in the form of the mythological texts is critical. The Puranic traditions are by no means religious or mythical narratives: they provide information on fields as varied as astronomy, medicine, ecology and even metaphysics, frequently presented in a symbolic or allegoric way. In this review, the author aims at reviewing the overlaps between modern-day scientific teachings and its Puranic counterparts, such as cosmology, life sciences, and environmental ethics. The research comprises comparing some Puranic material to modern scientific knowledge in an attempt to evaluate to what extent ideas in ancient Indian philosophy predicted or supplemented some modern knowledge. The paper aims not to justify mythology as a science, but to find out positive parallels and philosophical work that are still valid today. It is a method which promotes a subtle reading of traditional texts in the framework of interdisciplinary approach. The review finally points to the possibility of the Puranic texts to participate in whole-minded conceptualizations of knowledge and initiates a conversation between ancient wisdom and contemporary scientific thought in the larger spectrum of the Indian Knowledge System.

Keywords:- Purāṇa, Indian Knowledge System, Cosmology, Āyurveda, Environmental Conservation, Rājadharmā, Sustainable Development, Modern Science, Social Justice, Feminine Power

Introduction

The word Purāṇa means “ancient narrative.” That which has been orally transmitted from ancient times is known as Purāṇa -

“purāparamparām vyaktim purāṇam te vai smṛtam”

(Padma Purāṇa, Sṛṣṭi Khaṇḍa).

Although many equate the Purāṇas with history at first glance, they are fundamentally distinct. Itihāsa refers to historically grounded events of the recent past, while Purāṇa deals with narratives of the distant and often symbolic past. Classical texts like the Śatapatha Brāhmaṇa, Taittirīya Āraṇyaka, and Chāndogya Upaniṣad refer to the Purāṇa as the “Fifth Veda,” emphasizing its spiritual and philosophical importance alongside the four canonical Vedas.

Scholarly opinions differ regarding the authorship of the Purāṇas. According to the Padma Purāṇa (1.45):

“Purāṇam sarvaśāstrāṇām prathamam brahmaṇā smṛtam”

– the Purāṇas were first conceived by Brahmā. In Indian tradition, however, Sage Vyāsa is widely credited with compiling them. Some also believe that, like the Vedas, the Purāṇas are apauruṣeya (not man-made) and were preserved through oral tradition. Western scholars, by contrast, view them as the cumulative literary output of multiple poets and thinkers over time. Although the dating of the Purāṇas remains debated, most scholars agree they were composed and compiled between the 4th century BCE and the 7th century CE.

The thematic structure of the Purāṇas offers insight into their scope and purpose. Texts like the Vāyu Purāṇa, Matsya Purāṇa, and Kūrma Purāṇa identify five core characteristics (pañcalakṣaṇa) of a Purāṇa:

“Sargaś ca pratisargaś ca vaṁśa manvantarāṇi ca,

vaṁśānucaritaṁ caiva purāṇam pañcalakṣaṇam.” (Vāyu, 4.13)

These include: Creation (sarga), Dissolution and re-creation (pratisarga), Genealogies (vaṁśa), Cycles of Manus (manvantara), and Dynastic histories (vaṁśānucarita). The Matsya Purāṇa expands this list by adding six further characteristics: cosmography, laws of donation and charity, ancestral rites, varṇāśrama classification, temple construction, and deity installation. The Bhāgavata Purāṇa lists ten attributes, including creation, sub-creation, sustenance, protection, motivation, genealogies, dynasty history, dissolution, the ultimate cause, and shelter.

The Śrīmad Bhāgavata Purāṇa enumerates the eighteen Mahāpurāṇas: Viṣṇu, Nāradiya, Bhāgavata, Garuḍa, Padma, Varāha, Brahmāṇḍa, Brahmavaivarta, Mārkaṇḍeya, Bhaviṣya, Vāmana, Brahma, Matsya, Kūrma, Liṅga, Śiva (or Vāyu), Skanda, and Agni.

While these texts are compilations of mythological stories, they are also profound sources of philosophical, scientific, ethical, and social knowledge. They contain insights on cosmology, the environment, health, socio-political systems, and moral conduct -ideas that remain highly relevant even in the modern age. This paper, therefore, examines how the teachings of the Purāṇas align with and contribute to contemporary scientific fields such as environmental science, cosmology, and governance. In doing so, it highlights how ancient wisdom may offer valuable perspectives and solutions to current global challenges.

Literature Review

Associated primarily with mythology, the Purāṇas have increasingly drawn scholarly attention not only for their vast encyclopedic content but also for their potential compatibility with contemporary scientific theories. Academic studies have emphasized that the Purāṇas are far from being purely religious or non-secular texts; rather, they function as rich sources of multidisciplinary knowledge encompassing cosmology, ecology, health sciences, ethics, and sociopolitical governance.

In The Science and Philosophy of the Purāṇas, Chatterjee (2006) offers a foundational textual analysis of cosmological models described in texts such as the Vāyu Purāṇa and Bhāgavata

Purāṇa. He argues that the cyclical model of time -articulated through constructs like kalpa and manvantara -along with a graded taxonomy of cosmic structures, reveals a symbolic yet systematic cosmological framework. Though couched in mythological language, these concepts echo principles found in modern astrophysics and theoretical cosmology.

Extending this interpretation, Subhash Kak (2000), in *The Astronomical Code of the R̥gveda*, demonstrates how the Purāṇas and other early Indian texts encode sophisticated astronomical data. He identifies recurring numerical patterns and temporal cycles that closely correspond with modern understandings of planetary motion, cosmic epochs, and even relativity. Kak's interdisciplinary approach emphasizes that the Vedic and Purāṇic worldview was deeply mathematical and observational in nature.

In the domain of ecology, Haberman (2006), in *River of Love in an Age of Pollution*, provides an ethnographic study showing how the sanctity of the Yamuna River -rooted in Purāṇic tradition -has contributed to an environmental ethic in which rivers, forests, and natural elements are treated as living entities deserving moral responsibility. Similarly, Guha (2000), in *Environmentalism: A Global History*, argues that early Hindu ecological thought, shaped by Purāṇic narratives, formed the basis of what he terms “pre-modern environmentalism.”

Chattopadhyaya (1977), in *Science and Society in Ancient India*, investigates the empirical and medical knowledge embedded within the Purāṇas. He challenges the common misconception that ancient Indian science was speculative by demonstrating that Ayurvedic traditions reflected methods of observation, classification, and experimental control. This is echoed by Jha (2010) in *Ayurveda and the Roots of Science*, who explains how Ayurvedic philosophy synthesized naturalistic observation with theoretical reflection, resulting in a proto-scientific methodology that resonates with modern scientific inquiry.

More recently, the pedagogical and integrative dimensions of the Purāṇas have become a subject of renewed interest. Kapoor (2023), in *Indian Knowledge Systems*, emphasizes the role of the Purāṇas -often referred to as the "Fifth Veda" -in transmitting scientific, ethical, and cultural knowledge across diverse audiences. Likewise, Pattanaik (2021), in *Indian Myth and Science*, argues that Purāṇic stories were crafted not only to teach moral values but also to explain natural and social phenomena through metaphor and allegory, thereby bridging the realms of myth and science.

Together, these works contribute to a growing recognition of the Purāṇas as sophisticated repositories of ancient knowledge systems. Far from being obsolete mythological texts, they offer conceptual frameworks that remain relevant to modern scientific discourse and interdisciplinary studies.

Methodology

This paper will use qualitative and interpretive approach using textual analysis of the selected Maha Puranas; namely the Bhagavata, Matsya, and Vayu Puranas. Primary textual sources were analyzed to distinguish some common cosmological, ecological, and philosophical

themes occurring in them. Then, they were compared to principles, according to modern scientific literature, in cosmology, environmental science and health. Interpretations were supported with the use of secondary sources such as academic books and scholarly commentaries. It is an interdisciplinary methodology that combines Indological, the philosophy of science, and cultural approaches in search of conceptual similarities and potentials that would prove the relevance of the Puranic teachings to a modern scientific discourse.

Scientific Themes of Puranas

The structure of Puranic knowledge and contemporary science shows a complicated pattern of repulsion and attraction. Both traditions are similar in that they seek answers to the question of the nature of reality yet play a very wide gap with regards to methodology and epistemology. Purāṇas traditionally convey wisdom in an allegorical accounts, personal philosophical symbolism and religious philosophy and much of this is usually based on intuitive and experiential understanding. The purpose of these texts is not only to give an account of the universe, but also to transmit ethical, cosmological and metaphysical knowledge.

Instead, modern science works upon the basis of empirical study, critical observation, experimenting, and logical thinking. It is also focused on measurable data and falsifiability, building testable models of the physical world with testable data. Although these methodological differences exist, still some of the themes related to Puranic literatures can be matched with scientific concepts. The cyclical nature of time and the universe are concepts which reflect the current cosmologies especially concerning the oscillating universe models. On the same point, Puranic division of matter and elements have something in common with modern atomic theory and the environmental spirit of the Puranas has a parallel in contemporary ecological science.

(A) Cosmology and Astronomy: One branch of astronomy is cosmology, which explores the origin, structure, evolution, and future of the universe. It primarily employs theories and observations from physics, mathematics, and astronomy to understand the universe's overall nature. According to the Big Bang theory, the universe originated around 13.8 billion years ago from a massive explosion. The Hubble Law states that the universe is continuously expanding. The cosmological concepts found in the Brahmāṇḍa Purāṇa, Viṣṇu Purāṇa, and Śrīmad Bhāgavata Purāṇa show conceptual similarities with modern cosmological theories.

The Brahmāṇḍa Purāṇa states:

"sarvaṁ khalvidaṁ brahma tasmād brahmaṇaḥ samutpannam.

sṛṣṭisthityantakaraṇaṁ nānyad asti tathārthataḥ." (Brahmāṇḍa 1.1.5)

"This entire universe has arisen from Brahman; He is the cause of creation, sustenance, and dissolution. In essence, there is nothing beyond Him."

This view reflects a monistic cosmology similar to the Big Bang theory, which posits that the universe originated from a singularity and expanded thereafter.

The Viṣṇu Purāṇa says:

"āsīd idam tamobhūtam aprajñātam ala-kṣaṇam.

pralīnam iva sarvātmani svayambhūr bhagavān abhūt." (Viṣṇu Purāṇa 1.2.19)

“Initially, everything was shrouded in darkness, unperceived and undifferentiated. Then the self-born Supreme Being manifested.”

This aligns with the pre-Big Bang concept of a compressed, unmanifest, and unstable state that expanded through the explosion.

In the Śrīmad Bhāgavata Purāṇa, the concept of time’s emergence during the creation process is described:

"yadā sisṛkṣuḥ puruṣaḥ puruṣottamaḥ

kālaṁ guṇāṁśca mayyā viviktān.

ātmānamavyaktamathāpi cātmanaḥ

sañjoṣayāñcakra iṣṭa saṅgatam." (Bhāgavata 3.5.23)

“When the Supreme Being desired to create, He combined time, the fundamental qualities, and the unmanifest soul, thereby initiating creation.”

This description of combining Time, fundamental properties, and matter resonates with modern cosmology’s concept of the emergence of space-time, energy, and matter during the Big Bang.

In the Big Bang model, space-time and energy originated, and matter was formed from energy. In the Purāṇas, all matter originates from Prakṛti or Mahattattva, aligning with the scientific idea of primordial matter. The Śrīmad Bhāgavata Purāṇa states:

"mahattattvaṁ hi prakṛteḥ pradhānaṁ yad āhuḥ sattvaṁ

viṣṇur janayati sa vikurvāṇa ubhayam." (Bhāgavata 3.26.10)

“Mahattattva is considered the principal element of Prakṛti, which, governed by Sattva, Rajas, and Tamas, brings forth creation.”

According to the Viṣṇu Purāṇa, the creation is governed by three fundamental guṇas - Sattva (purity and knowledge), Rajas (activity and creation), and Tamas (inertia and destruction). From Sattva arise the gods, from Tamas the demons, and from Rajas humans are born.

(B) Health and Medical Science: In the history of ancient Indian medicine, Ayurveda played a significant role. The Purāṇas refer to Dhanvantari, the Ashvinī Kumāras, and the Charaka Saṁhitā as foundational figures in Ayurvedic development. According to the Purāṇas, Dhanvantari is the deity of Ayurveda, who emerged from the churning of the ocean (Kṣīrasāgara) carrying nectar (amṛta) and the knowledge of Ayurveda. He is considered the physician of the gods and the progenitor of Ayurveda. The Viṣṇu Purāṇa states:

"dhanvantarir vidāṁ śreṣṭhaḥ syād āyurveda pravartakaḥ.

sa vai kalpāntare ’bhūt tu smṛto bhagavān svayam." (Viṣṇu 1.22.69)

“The highly wise Dhanvantari is the founder of Ayurveda. He appears in every age and is revered as divine.”

Just like modern medical science emphasizes health and longevity, Ayurveda also focused on wellness and long life. Today’s healthcare systems, hospitals, and medical principles can be traced back to Dhanvantari’s Ayurvedic system. Every year, National Ayurveda Day is celebrated on Dhanvantari Jayanti.

The Ashvinī Kumāras (Nāsalya and Dasra), who are known as the physicians of the gods, were among the earliest proponents of Ayurvedic medicine. They were pioneers in organ transplantation, eye treatments, and plastic surgery, which aligns with today's regenerative medicine, organ transplant procedures, and dermatological surgery. The Purāṇas recount how the Ashvinī Kumāras restored Sage Cyavana’s youth - akin to modern rejuvenation therapies. The Ṛgveda states:

"aśvināu devatā bhiṣajau ca samastalokasya hitāya." (Ṛgveda 8.22.1)

“The Ashvinī Kumāras are the divine physicians working for the welfare of the entire world.”

In the Mahābhārata, they are described as reviving Bhīṣma, Kaca, and Cyavana. They specialized in surgery (Śalya-cikitsā) and dermatology.

Charaka Saṃhitā, composed by Sage Charaka, is the most important and ancient text in Ayurveda. It discusses diagnosis, treatment methods, diet, and physiology in detail. Its foundation lies in the Tridoṣa theory - Vāta, Pitta, and Kapha - which remains central to Ayurvedic treatment even today. Just as modern medicine is built on anatomy, pharmacology, and surgery, Ayurveda is rooted in Purāṇic and Vedic traditions.

Concepts like preventive medicine, holistic healing, and diet therapy in modern alternative medicine have originated from the Charaka Saṃhitā. Thus, Dhanvantari, the Ashvinī Kumāras, and Charaka Saṃhitā form the foundation of Ayurveda. The deep connection between ancient medical knowledge and modern healthcare forms the basis of today's Ayurveda, alternative medicine, and natural wellness therapies.

In Hindu culture, the cow is revered as Gomātā. The Vedas, Purāṇas, and Ayurvedic texts mention the medicinal qualities of cow milk, urine, dung, and ghee. These are widely used in today’s organic farming, Ayurveda, and homeopathy. The Skanda Purāṇa states:

"Gāvo viśvasya mātaraḥ sarvadevamayo gavaḥ.

Gavāṃ vinā na loke'smin svasti rūpaṃ bhaviṣyati." (Skanda 6.255.10)

“The cow is the mother of the world and the embodiment of all gods. Without cows, there can be no peace and well-being in the world.”

Modern research has found antibacterial and anticancer elements in cow urine. Cow milk contains calcium, protein, and Omega-3, which strengthen bones and benefit the heart. Thus, the medicinal value of cows as depicted in ancient scriptures is now being validated by modern science, establishing its significance in Ayurveda, alternative medicine, and organic agriculture.

Scientific studies also confirm that cow urine and dung are environmentally and health-friendly.

(C) Psychology and Ethics: The characters in the Rāmāyaṇa and Mahābhārata, which are based on mythological narratives, are significant examples of modern psychology and self-development. Analyzing these characters reveals various psychological states, behavioral psychology, and moral teachings relevant to human life. These epics teach us courage, morality, crisis management, and self-control -skills highly pertinent to both personal and professional life.

For example, an analysis of the character of Śrī Rāma in the Rāmāyaṇa shows that he was a symbol of patience, integrity, and righteousness. These traits are comparable to modern Emotional Intelligence (EI) and leadership skills. Rāma was tolerant and self-restrained, never making decisions under emotional influence. His character teaches us how to control emotions and make the right decisions. He took decisions patiently even in adverse situations. As a king, he prioritized public welfare, which serves as a model for modern leaders.

Regarding the nature of a king, the Rāmāyaṇa states:

"Dharmaṇa panthā kṛcchrāṇām yasya lokah pravartate.

Sa eva rājā dharmajñaḥ satyaṁ rājā sanātanaḥ." (Vālmīki Rāmāyaṇa, 2.2.30)

“He who leads people along the difficult path of righteousness, who adheres to truth and justice even in trying times -he alone is a true and eternal king.”

Rāvaṇa’s character in the Rāmāyaṇa reflects pride and self-destruction. Despite knowing that abducting Sītā was wrong, his arrogance kept him from the right path. Although Rāvaṇa was extremely knowledgeable and powerful, his ego and greed led to his downfall. About the consequences of pride, the Rāmāyaṇa teaches:

"Vidyā vinaya saṁpanne brāhmaṇe gavi hastini.

śūnye caiva suparṇe ca paṇḍitāḥ samadarśinaḥ." (Rāmāyaṇa, 6.95.74)

“True wisdom bears fruit only when accompanied by humility; pride renders knowledge worthless.”

Thus, humility and self-reflection are essential for self-development. Rāvaṇa’s excessive self-pride and narcissistic behavior can be compared with today’s Narcissistic Personality Disorder (NPD). The character of Hanumān in the Rāmāyaṇa symbolizes self-confidence and service. He was fully aware of his immense strength and used it for the welfare of others.

Śrī Kṛṣṇa in the Mahābhārata represents strategic intelligence and the wisdom of real life. He applied different strategies in different situations. While he tried to avoid war, he also made pragmatic decisions when necessary. Hence, one must be realistic to take tough decisions in life.

The inner conflict of Arjuna, one of the central characters in the Mahābhārata, is comparable to modern concepts of anxiety and stress management. Before the Kurukṣetra war, Arjuna was

hesitant and mentally conflicted -an experience akin to today's Impostor Syndrome. The Bhagavad Gītā, delivered by Kṛṣṇa in the battlefield, gave Arjuna mental strength.

"Karmaṇy-evādhikāras te mā phaleṣu kadācana.

Mā karma-phala-hetur bhūr mā te saṅgo 'stv-akarmaṇi." (Bhagavad Gītā, 2.47)

“You have the right to perform your duty, but not to the fruits of action. Let not the fruits of action be your motive, nor let your attachment be to inaction.”

This implies that proper guidance and patience during crises can lead to success. Focus and concentration are vital for success in any endeavor.

The character of Duryodhana in the Mahābhārata represents greed and self-destructive mentality. He was jealous and stubborn -traits associated with toxic personality. His arrogance and envy led to his downfall. As stated in the Udyoga Parva of the Mahābhārata:

"Lobhaś ca santāpakaraḥ pāpaś ca bahurūpakaḥ.

Vināśāya ca satyānām nityam kāryo manasvinām."

“Greed, anger, and sin take on many forms and bring ruin to the virtuous. Therefore, the wise must constantly guard against them.”

Thus, humility and a positive attitude are essential for self-improvement.

From the characters of the Rāmāyaṇa and Mahābhārata, it is evident that these epics serve as guiding lights for moral education and personal development. When analyzed through the lens of modern psychology, their characters provide real-life applications of leadership, emotional intelligence, and stress management. For success, it is not pride but patience, honesty, and self-control that are most valuable.

"Ahiṃsā satyavacanam santoṣaḥ śaucam eva ca.

Adrohaś cān asūyā ca śrutam caiva brahmavarcasam." (Manusmṛti, 4.138)

“Non-violence, truthfulness, contentment, purity, freedom from envy and hatred, and knowledge -these are the signs of true wisdom.”

Conclusion

The Puranas of ancient India are much more significant and comprehensive than religious or mythological narratives only: the Puranas are the most significant colorations of the Indian Knowledge System, where religion, science, philosophy, ethics, and spirituality are precisely merged and channeled as a whole. The Puranas convey complicated notions on the universe, life, health, and human society through symbolic stories and allegory of words. This paper has demonstrated that Puranic approach to knowledge on the one hand, and modern science on the other, are doctrinally inclined to court each other even though they are methodologically different. In any case, be it cosmology, ecology or health sciences, the Puranas relate issues that reflect or foreshadow modern scientific reflection. Early ideas about the cyclical time and

universal creation are similar to the models of modern astrophysics; early ideas of ecological harmony are similar to the ideas of environmental sustainability; early methods of medicine can be compared to the modern ideas of holistic and preventive medicine. The parallels are no accident, but the result of a highly advanced intellectual tradition that sought to interpret knowledge in a profound integrative and empirical way. According to this the Puranas are a mixture of reason, fantasy and self-reflection-a primitive science of philosophy providing not only metaphysical insight, but a practical knowledge too. They are not merely historically or culturally interesting they offer both vocabulary and worldviews that are still useful in the current scientific and ethical problems of the world.

This study is also an endorsement of the idea that ancient Indian literature must be reviewed not only because it is a fascinating heritage or a religious book but because it is a viable addition to the treasury of scientific thought in the universe. The combination of Puranic thoughts and the current scientific approach might emerge as a motivation to new trends in interdisciplinary research, sustainable development, and ethics in science. To conclude, Puranas do not represent the evidence of a mythical past but it is a document of living science and philosophy- reservoirs of knowledge that can replenish and guide the future of worldly science and human knowledge.

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