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A Study of the Concept of Gravity during Vedic and Modern Age

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Abstract:

This paper explores the evolution of the concept of gravity from ancient Indian thought to modern science. It examines early Indian centres of learning like Takshila and Nalanda and the contributions of scholars such as Patanjali, Kanad, Aryabhata, and Bhaskaracharya in fields like astronomy and physics. The study traces the development of gravitational theories from these ancient insights through to Newton and Einstein, showing how ancient Indian knowledge aligns with modern scientific understanding and highlights the continuity of intellectual progress.

Keywords: Gravity, Vedic Physics, Vaisheshika, Rigveda, Universal law of gravity and Theory of relativity

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1. Introduction

It is recorded that the world's first university was founded at Takshila in India mainly around 700 BCE and at this university more than 10,500 students from different parts of the world learned more than sixty disciplines. (Avinandan, 2020) In fact the University of Nalanda which was established much later in the 4th century BCE can be considered as one of India's greatest works in the field of education. During the Vedic period, India reached remarkable heights in education, particularly in science, laying the foundation for many modern concepts in fields such as astronomy, mathematics, physics, chemistry, and aviation. However, much of this knowledge was lost, destroyed, or inadequately documented, leading to a decline in India's prominence in discoveries and inventions. Despite producing world-class scholars like Aryabhata (mathematics), Rishi Bhaskaracharya (physics), Varahamihira (astronomy), Nagarjuna (chemistry), Rishi Kapil (cosmology), Bharadwaja (aviation), Sushruta (surgery), and Rishi Kanada (atomic theory), many of these geniuses did not receive due recognition.

Modern physical science has significantly shaped human life, influencing technology, thought, culture, and spirituality, but it also faces limitations, as seen in the speculative nature of many recent theories. The intersection of modern physics with Hindu philosophy has drawn interest, with scholars like K. Vasavada, C. Sagan, F. Capra, M.M. Yogi, P. Davies, T.D. Singh, and others in Indonesia, such as I.K. Widnya, I.K. Donder, and I.W. Suja, have explored parallels between scientific theories and teachings in the Vedas and Upanishads, revealing surprising similarities in their mystical understanding of reality. (Nyoman Sudiana, 2018) The Vedas, considered a manual of the universe, contain vast amounts of scientific knowledge, which was often appropriated by foreign invaders during British rule.

The phenomenon of gravitation, which governs the movements of celestial bodies and earthly objects has intrigued humanity for as long as we can remember, and interpretations of gravitation emerged from cultural, philosophical, and scientific perspectives in different ways. The understanding of gravitation has developed a great deal throughout history, with the contributions of various thinkers along the way, including Maharishi Patanjali (2nd Century BCE), Maharishi Kanada (3rd Century BCE), Aristotle (3rd Century BCE), Aryabhata (5th Century CE), Varahamihira (5th Century CE), Brahmagupta (6th Century CE), Al Biruni (10th

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Century CE), Bhaskaracharya (11th Century CE), Galileo Galilei (16th Century CE), Johannes Kepler (16th Century CE), Isaac Newton (17th Century CE), and Albert Einstein (19th Century CE). Together, there contributions illustrate the shift from qualitative descriptions to a nuanced, quantitative understanding of gravity. This paper explores the concept of gravity, tracing its evolution from ancient Vedic thought to its formalization in modern physics, highlighting the enduring legacy of India's intellectual contributions.

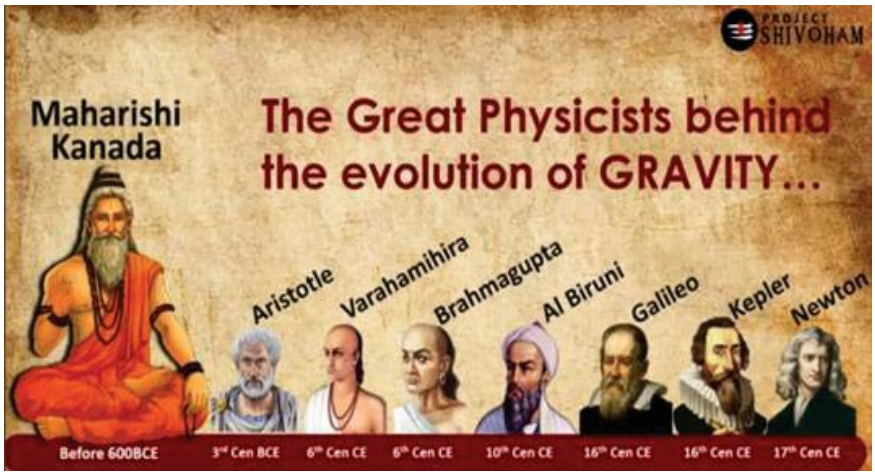

Figure 1 Physicians who discovered gravity (Ayyappa, 2021)

2. Methodology

The research methodology for this paper involved an extensive review of historical texts, focusing on ancient Indian scriptures like the Vedas, Upanishads, and works by scholars such as Maharishi Patanjali, Aryabhata, and Bhaskaracharya. These texts were analysed to extract references to gravity, which were then compared with the contributions of Western scientists like Galileo, Newton, and Einstein. The study also incorporated secondary literature and contextual analysis to explore the cultural and philosophical frameworks of both periods. Thematic analysis was used to identify recurring insights, culminating in a narrative tracing the development of the concept of gravity from ancient to modern times.

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3. Gravity in Modern Age

3.1 Galileo and Kepler Concept of Gravity

Galileo Galilei and Johannes Kepler made foundational contributions to the understanding of gravity. Galileo examined problem of free-falling objects and demonstrated that all objects regardless of their weight would fall at the same rate in vacuum, the concepts of inertia and accelerated and uniform acceleration were also introduced here by Galileo. Kepler formulated laws of planetary motion that described elliptical orbits and suggested that celestial bodies are influenced by a force from the Sun. Their work provided crucial insights and mathematical frameworks that paved the way for Newton's comprehensive theory of universal gravitation.

3.2 Newton's Law of Universal Gravity

Sir Isaac Newton initiated the current scientific conception of gravity in the 17th century. Newton provided an extensive treatment of gravity in Philosophiæ Naturalis Principia Mathematica in 1687 and derived the Law of Universal Gravitation. (Alan H. Cook, 2024) The Law states that "The gravitational force F between two-point masses m1 and m2 is directly proportional to the product of their masses and inversely proportional to the square of the distance r between their centres." (Samuel J. Ling, 2016) The law expressed mathematically is:

F=G (m_1 m_2)/r^2

Where, G is the gravitational constant (G ≈ 6.674×10-11 Nm2/kg2). This law postulates that all bodies interact through gravity with equal force pulling them together with no limitations on distances and the force getting weaker as distances are squared. Newton's theory revolutionized physics by providing a unified explanation for both terrestrial and celestial phenomena, such as planetary orbits and falling objects. Although Einstein's theory of general relativity later offered a more precise description of gravity in extreme conditions, Newton's law remains essential for most practical applications in science and engineering.

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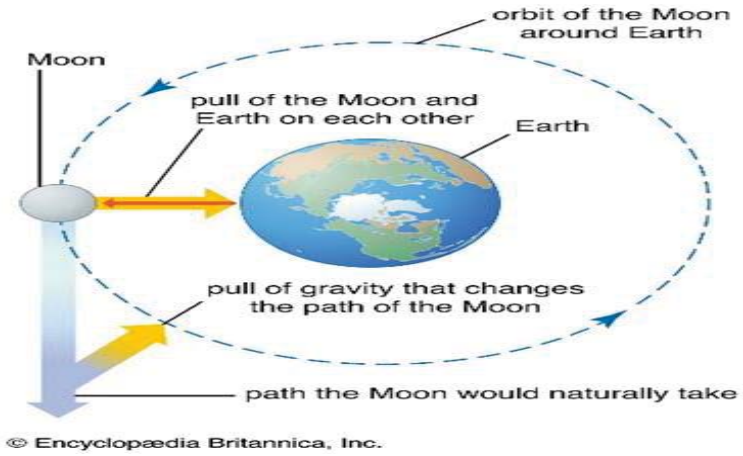

Figure 2 Effects of Gravity (Alan H. Cook, 2024)

3.3 Einstein's General Theory of Relativity

Proposed in 1915, Einstein's General Theory of Relativity transformed the understanding of gravity. It characterized gravity not as a force, but rather as the curving of space and time by matter and energy. (Samuel J. Ling, 2016) That is, according to relativity, space and time are linked and form a four-dimensional continuum called spacetime, which can be warped by the presence of a massive object. This curvature caused by an object, the curvature influenced by a matter and energy, alters the motion of other objects which we feel as a force called gravity. Relativity also introduced the equivalence principle, which establishes that gravitational effects are indistinguishable from acceleration. Matter and energy "tell spacetime how to curve" which can be explained mathematically in Einstein's field equations, explaining intimate details of the underlying physics behind gravity. As one of the predictions of this model, general relativity affords a prediction for gravitational time dilation and extended this thinking further into the exotic where black holes are predictions alongside quadrupole spacetimes and gravitational radiation. General relativity has been experimentally observed and verified alongside the gravity model of the universe constructed from its predictions, which itself meritoriously expands the understanding of physics.

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Today gravity is recognized as one of four fundamental forces of nature with the broad consensus that its forces interplay with electromagnetism, the strong nuclear force, and the weak nuclear force. Yet, there continues to be truly exciting work in physics seeking to combine general relativity or relativistic gravity with quantized models of gravitational forces from quantum mechanics or to develop a theory of quantum gravity. This endeavour suggests a layer of complexity that spells the breadth and richness of our understanding of gravity which continues to resolved and unfold.

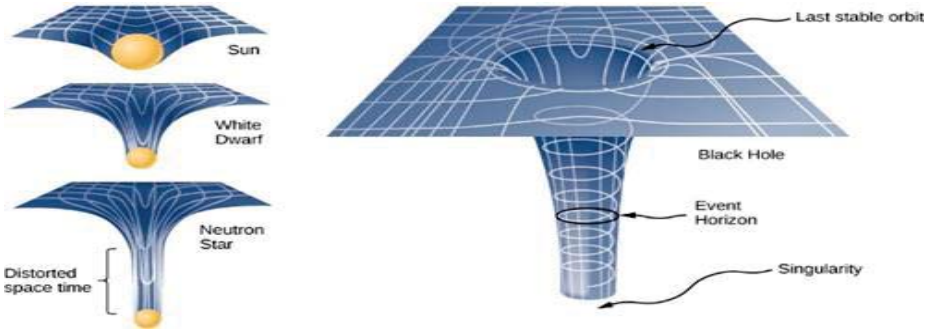

Figure 3 Theory of Relativity (Samuel J. Ling, 2016)

4. Gravity in Vedic Age

In Indian languages, the concept of "gravity" and "gravitational pull" is often expressed as "Gurutva Aakarshana Shakti." The term "Gurutva" translates to "mass," and "Aakarshana" means "attractive pull" or "attraction." This terminology indicates that ancient Indian scholars recognized a relationship between an object's mass and its gravitational force. It should be noted that this idea of gravity reflects an awareness that an attractive force has to do with mass. We will now examine the way different ancient Indian scholars viewed and described this physical concept of gravity as their own perspectives.

4.1 Maharshi Patanjali

Maharishi Patanjali who is lived around 2nd century BC is one of the impacted philosophers in yoga who is renowned for writing the Yoga sutra. His teachings remain influential and relevant, crossing temporal and cultural boundaries. In one of his verses, Patanjali provides an

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early insight into the concept of gravitational force: "लोष्ट: क्षिप्तो बाहुवेगं गत्वा नैव तियर्क गच्छति नोर्ध्वमारोहति। पृथ्वीविकार: पृथ्वीमेव गच्छति आन्तर्यत:।" (Mahajan, 2024) This translates to "If a lump of soil is thrown upwards, it neither deviates horizontally nor ascends indefinitely after it has attained its initial velocity. Instead, it returns to the Earth due to the disturbance of the Earth itself."

This observation reflects an early understanding of gravity, illustrating that even ancient Indian scholars had a conceptual grasp of how objects are influenced by the Earth's gravitational pull. Patanjali's insights offer a remarkable parallel to modern scientific concepts, highlighting the profound nature of ancient Indian knowledge.

4.2 Maharshi Kanad

Maharishi Kanad, also known as Kashyapa Kanad, was an ancient Indian sage and philosopher who lived around the 3rd century BCE, and he was one of the major philosophers that greatly influenced philosophy with respect to atomism as well metaphysics. In his seminal text, the Vaisheshika Darshnam, Kanad meticulously examined the fundamental substances that constitute the universe, such as earth, water, air, fire, space, time, direction, soul, and mind, and elaborated on their inherent properties. This is reflected in the verse: "पृथिव्यापस्तेजो वायुराकाशं कालो दिगात्मा मन इति द्रव्याणि" (V.S. 1.1.5). (Mahajan, 2024)

In addition to the breaking down of the matter, Kanad also explained the forces of gravitation, which also reveals his understanding of the natural forces and contributed to the beginning of a study of gravitation. Kanad's exploration of motion was equally comprehensive. He categorized motion into five fundamental types: उत्क्षेपण (Upward movement), अवक्षेपण (Downward movement), आकुञ्चन (Contraction), प्रसारण (Expansion), and गमण (Horizontal movement). He attributed these types of motion to a force or action he termed 'कर्माणि' in Sanskrit. (Mahajan, 2024) Therefore, from the classification by Kanad, we are able to develop a basis to explain the behaviour and the interaction of different objects in the natural environment.

In his work, Kanad also provided a detailed explanation of projectile motion. He presented a formula for this type of motion, stating: "गुरुत्वप्रयत्न संयोगाना मुत्क्षेपणम्" (V.S. 1.1.29) (B. Mahadevan, 2022), which translates to "Projectile motion arises from the confluence of gravitational force,

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external upward force, and upward movement." To illustrate this, consider the act of throwing a football straight into the air. In Kanad's model, there are three forces acting on a ball: the force the thrower applies to send the ball into the air, gravitational force acting vertically downward on the ball, and air resistance that affects the ball's motion upward. Kanad's description reveals a deep understanding of the physics behind projectile motion. He claims that the first force is "effort," which stands for the external force that goes up when a ball is thrown. The second force is "gravity," the downward pull exerted by the Earth. The interaction between these opposing forces creates a resultant force known as "upliftment," signifying the upward movement of the object. Kanad emphasizes that the interplay between gravity and effort, termed "elevation," is crucial in determining the motion of the object.

Figure 4 Kanad's Gravity (Mahajan, 2024)

The Vaisheshika Sutra also explores the role of gravity in two specific scenarios. First, it explains why an object falls when released from the hand: "आत्मकर्म हस्तसंयोगाश्च" (V.S. 5.1.6) (Ankit, 2021) which translate to "The action of the body and its members is also in conjunction with the hand." "संयोगभावे गुरुत्वात्पतनम" (V.S. 5.1.7) (Ankit, 2021) which translate to "In the absence of conjunction, falling results from gravity." Second, it addresses why an object thrown into the air eventually falls back to the ground: "नोदनाद्यभिषोः कर्म तत्कर्मकारिताच्च संस्कारादुत्तरं तथोत्तरमुत्तरं च" (V.S 5.1.17) (Ankit, 2021) which translate to "The first action of the arrow is from impulse; the next is resultant energy produced by the first action, and so on." "संस्काराभावे गुरुत्वात्पतनम" (V.S. 5.1.18) (Ankit, 2021) which translate to "In the absence of resultant or propulsive energy generated by the action, falling results from gravity."

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Perhaps when described in terms of the language used in Newton's physics, Kanad's discoveries show that the force acting on any object that is thrown up is directly proportional to the sum of an external boost as well as the force pulling down by gravity. The early articulations of the tenets of gravity demonstrate Kanad's remarkable clarity and foresight, evidencing an acute grasp of a force of nature innately vital long before there was an established modern science of physics.

4.3 Aryabhata

Aryabhata was a Vedic genius of the 5th century that contributed breakout innovations that altered mankind's interpretation of the night sky. He held an extraordinary understanding of the universe that remains scientifically viable to this day conveyed in his writing: "Surya Siddhanta," a text so significant it resonates through the ages, withstanding the test of education, applied not just in India but reenactments across oceans with scientific communities innumerable dating back to the West.

"Surya Siddhanta" incorporates Bhaskaracharya innovations that delved into the depths of gravity, even as they retained the time-evocative essence of the Vedic tradition. The ancient text vividly describes the Earth as a spherical body that remains suspended in the cosmos. The force responsible for keeping the Earth stable in its celestial position was termed 'dharanatmikam shakti' by this Vedic scholar. Bhaskaracharya expresses this concept in the 12th chapter 32 shloka: "मध्ये समन्तंदस्य भुगोलो व्योम्नि तिस्थति बिभ्रनः परमं शक्तिं ब्रह्मणो धरणात्मिकम्|" (Shruti, 2023) This translates to "The Earth is a sphere that stands firmly in the centre of the universe due to the 'dharanatmikam shakti.' This force or shakti prevents the Earth from drifting away and keeps it securely in place." In essence, the "Surya Siddhanta" builds upon the concepts found in the Rig Veda to present clearer and more relatable scientific principles.

Aryabhata expands on this idea in his work, especially in Gitikapada, shloka 7, where he employs a poetic metaphor to illustrate the Earth's gravitational centre. He states, "just as the smaller flowers of the Kadamba cluster are anchored to the centre, all living beings in water, on the surface, and in the sky are connected to the centre of the Earth." (Ankit, 2021) This

poetic expression underscores the Vedic understanding of gravity, illustrating that all living beings whether in water, on land, or in the sky, are drawn toward the Earth's centre.

4.4 Varahamihira

In the 5th century, the esteemed astronomer and mathematician Varahamihira composed a verse that sheds light on the concept of a force akin to gravity: "पंचभमहाभूतमयस्तारा गण पंजरे महीगोल:। खेयस्कान्तान्त: स्थो लोह इवावस्थितो वृत:॥" (Mahajan, 2024) This verse reveals that the Earth possesses a force that draws objects towards it, similar to what we now understand as gravitational force. Varahamihira goes on to suggest that this force is not unique to the Earth but is inherent in all celestial bodies, keeping them anchored in their respective positions within the cosmos. Although he did not explicitly use the term 'gravity,' Varahamihira observations indicate an early recognition of this fundamental force that governs the movement and stability of objects in space.

4.5 Brahmagupta

Brahmagupta was a distinguished mathematician and astronomer from the state of Rajasthan in India; he was born in the year 598 CE and made substantial contributions to the study of the cosmos, including accurately determining the circumference of the Earth. (Mahajan, 2024) He was even able to predict the movement of the planets with remarkable precision. He also made use of the word "गुरुत्वाकर्षण" (gurutvakarshan), which is still used in India for the term gravity.

Building on the work of Varahamihira from a century earlier, Brahmagupta advanced the understanding of gravity in his book 'Dhyanagrihopadesh,' where he offered a more logical explanation of the gravitational theory. (Mahajan, 2024) He suggested that the Earth has a natural force that pulls objects toward its centre, which also accounts for the way water flows downward. Brahmagupta was not only a theorist; he also made great strides in practical measurement. He was able to reasonably estimate the circumference of the Earth, calculated the overall length of a year, and determined specifically when solar and lunar eclipses were occurring. He also stated that it took the Earth 365 days, six hours, five minutes, and 19 seconds to make one full orbit around the Sun. (Shruti, 2023)

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4.6 Bhaskaracharya

Bhaskaracharya, one of the most distinguished astronomers and mathematicians of the 11th century, is widely regarded as the greatest mathematician of the medieval era. Renowned for his pioneering work in astronomy and calculus, he authored "Siddhanta Siromaṇi" in 1150 CE at the age of 36. In this seminal work, Bhaskaracharya provided a detailed explanation of the force he termed "Gurutvakarshan Shakti," which he described in shloka 6: "अक्रास्ता शक्तिश्च मही तय यत् स्वस्थं गुरु स्वभिमुखं स्वसक्त्य। आकृष्यते तत्पत्तिव भाति समं समंतत् क्व पत्तव्यं खे॥" (Ankit, 2021) This verse explains that the energy inherent within the Earth is a power of attraction, referred to by Bhaskaracharya as "aakrushti shakti." He explained that because of this attractive force, the Earth draws objects toward itself, creating the impression that everything falls downward. This force is intrinsic and natural to the Earth. Bhaskaracharya then poses a thought-provoking question: where could the Earth itself fall within the vastness of space?

In addition to his exploration of gravitational force, Bhaskaracharya also discussed the shape of the Earth. He challenged the perception that the Earth appears flat, asserting that it is actually spherical. He elaborated on this by drawing an analogy: if one were to draw a large circle and observe a small segment of its circumference, it would appear as a straight line, though it is, in reality, curved. Similarly, while the Earth may seem flat to the observer, it is indeed spherical in shape. (Avinandan, 2020) This insightful explanation demonstrates Bhaskaracharya deep understanding of both gravitational force and the true form of the Earth.

4.7 Indian literatures

4.7.1 Rigveda

The Rigveda, an esteemed Vedic scripture that can be traced back to between 1200 and 1500 BCE, includes 1,028 hymns organized into ten books (Mandalas). (B. Mahadevan, 2022) These hymns explore various natural forces, often using allegorical names for these forces in the shlokas. For instance, when the Rigveda refers to deities like 'Aditya' or 'Chandra,' it is not merely addressing gods but rather the cosmic entities like the Sun and Moon. Vedic Indians revered these natural forces not to seek favours or blessings, but to acknowledge their profound

impact on human life. Beyond its religious significance, the Rigveda offers rich philosophical and cosmological insights, reflecting the intellectual pursuits of the Vedic people. It is, therefore, unsurprising that the Rigveda contains references to the principles of gravity and its effects on the cosmos.

Four shlokas from the Rigveda are particularly noteworthy for their connections to gravity:

Rigveda 8.12.30: "यदा सूर्यममुं दिवि शुक्रं ज्योतिरधारयः। आदित्ये विश्वा भुवनानि येमिरे॥" (Shruti, 2023) It means that "O God, You have created the Sun whose rays flow in streams of light. This Sun, created by you, upholds the entire cosmos steadfastly through the power of attraction granted by you." This verse suggests that the Sun, through its gravitational force, holds the cosmos together.

Rigveda 10.149.1: "सविता यन्त्रैः पृथिवीमरम्णादस्कम्भने सविता द्यामदृंहत्। अश्वमिवाधुक्षद्धुनिमन्तरिक्षमतूर्ते बद्धं सविता समुद्रम्॥" (Shruti, 2023) It means that "The Sun has bound the Earth and the planets through the attraction granted by the Gods. Just as a horse trainer guides newly trained horses using their reins, the Sun moves these planets around itself." This shloka draws a parallel between the Sun's gravitational pull and a horse trainer's control over horses, indicating an understanding of the solar system's dynamics.

Rigveda 8.12.28: "यदा ते हर्यता हरी वावृधाते दिवेदिवे। आदित् ते विश्वा भुवनानि येमिरे॥" (Ankit, 2021) It means that: "When you, O Sun, are uplifted and become increasingly radiant, all the worlds move closer to you in their respective orbits." This verse implies that the planets remain stable in their orbits due to the Sun's gravitational attraction, which also influences their speed as they draw nearer.

Rigveda 1.35.9: "हिरण्यपाणिः सविता विचर्षणिरुभे द्यावापृथिवी अन्तरीयते। अपामीवां बाधते वेति सूर्यमभि कृष्णेन रजसा द्यामृणोति॥" (Ankit, 2021) It means that: "The Sun travels along its orbit, keeping the Earth and other celestial bodies in a position that prevents them from crashing into one another, thanks to the force of gravity." This shloka reflects an understanding of the Sun's role in maintaining the orbits of celestial bodies, preventing collisions through gravitational force.

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These ancient verses from the Rigveda demonstrate that Vedic India possessed knowledge of the planetary system, the concept of gravity, and the revolution of planets around the Sun. Interestingly, numerous Notably, many Western scientists of the 18th and 19th centuries scientists from the West did acknowledge their reading of the Vedas, praising the Rigveda in particular as a divine gift to humanity of enormous importance in the cosmos.

4.7.2 Atharvaveda

The Atharvaveda, which consists of 20 books, 730 hymns, and approximately 6,000 stanzas, is frequently called the "knowledge storehouse of atharvanas," and exists in the realm of wisdom and practices for everyday life. (B. Mahadevan, 2022) Among its verses, Atharvaveda 4.11.1: "अनड्वान् दाधार पृथिवीमुत द्यामनड्वान् दाधारोर्वन्तरिक्षम्। अनड्वान् दाधार प्रदिशः षड्उर्वीरनड्वान् विश्वंभुवनमाविवेश॥" (Ankit, 2021) This verse illustrates the way God (represented by the Sun) keeps the Earth and other planets in their orbits can be likened to a bull pulling a cart. This comparison suggests a recognition of the Sun's function as a stabilizing influence on the Earth and other celestial objects in the universe.

4.7.3 Yajurveda

The Yajurveda is part of the four canonical texts of Hinduism, is a Vedic text shot between 1400 and 1000 BCE. It is essentially a manual for conducting Vedic sacrifices and includes important liturgical formulas, or "mantras," The Yajurveda is supplemented by the Brahmana and Shrautasutra texts, which provide detailed interpretations and instructions for these rituals.

The Taittiriya branch of the Krishna Yajurveda includes a verse that states: "मित्रोदाधार पृथिवीमुतद्याम। मित्रः कृष्टीः।" (Ankit, 2021) This translates to: "The Sun holds the Earth in space. It has a powerful attraction (kristheeh) and shines continuously." In this context, "kristheeh" is derived from the root "krish," which means attraction. The implies that the Sun draws the Earth towards it. While the Sun is linked to the force of attraction, the text also hints that the Earth has its own gravitational pull. This reflects an early understanding of gravity, given that someone in the past - wrote the observation known as "You are the Sun which causes Earth to circle you", is indicative of ancient recognition of gravity. (Ankit, 2021)

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4.7.4 Mahabharata

The Mahabharata is among two of the major Smriti texts and epic Sanskrit works in ancient India. Closely aligned alongside the Ramayana, the Mahabharata represents one of Hinduism's most sacred texts. It is an important source of knowledge on the development of Hinduism from around 400 BCE to 200 CE. The Mahabharata functions as both a book on dharma and historical narrative. The epic chronicles the events of the Kurukshetra War and aftermath of this succession war between the Kauravas and Pandavas who were groups of princely cousins. The Mahabharata is massive closely comprised of nearly 100,000 comedic, being divided into 18 books, and an additional book referred to as the Harivamsha which is a tradition associated along with sage Vyasa. (B. Mahadevan, 2022)

In one significant verse from the Mahabharata, Bhishma Pitamah addresses Yudhishthira: "भूमै: स्थैर्यं गुरुत्वं च काठिन्यं प्रसवात्मना, गन्धो भारश्च शक्तिश्च संघात: धृति।" (Mahajan, 2024) This verse discusses various properties of the Earth, as explained by Bhishma Pitamah. Among these properties, he identifies "gravity" as an inherent characteristic of the Earth. This ancient text highlights the early recognition of gravity as a fundamental property, underscoring its significance in understanding the natural world and the forces that govern it.

The Vedic texts and subsequent philosophical and astronomical developments reflect an evolving understanding of the forces that govern the universe, even if these understandings were framed in terms of divine principles and cosmic harmony rather than empirical science.

5. Conclusion

The study of gravity, from its ancient notions to modern scientific theories, highlights a continuous evolution in human understanding. Ancient Indian scholars such as Patanjali, Kanad, Aryabhata, Varahamihira, Brahmagupta, and Bhaskaracharya made foundational contributions to the early comprehension of gravitational forces, as reflected in their texts and observations. Works like the Rigveda, Atharvaveda, and Mahabharata reveal a nuanced grasp of cosmic forces. This progression from early insights to the formal scientific theories

developed by Galileo, Kepler, Newton, and Einstein showcases a refinement of the concept of gravity, evolving from qualitative observations to quantitative and theoretical formulations.

The legacy of ancient Indian knowledge enriches our historical perspective and provides valuable context for modern scientific development. Recognizing and amplifying the fact that Indian scholars were aware of gravitational principles long before Newton emphasizes the rich scientific heritage of ancient India. Honouring these contributions not only celebrates their legacy but also deepens our appreciation of the connection between historical and contemporary scientific understanding. It is important to bring this historical reality to global attention and ensure it receives the recognition it deserves. Interdisciplinary research combining ancient texts with modern scientific theories could uncover parallels that inspire new approaches in physics, especially in unifying general relativity and quantum mechanics. Exploring these ancient insights might lead to innovations in technology and space exploration. Integrating these findings into modern physics curricula would promote a more inclusive scientific history.

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Conflict of Interest

The authors confirm that there are no conflicts of interest concerning the publication of this paper.

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