SCIENCE AND SCIENTIFIC TEMPER REVISITING THE PAST FOR THE FUTURE: INVESTIGATING ANCIENT INDIAN KNOWLEDGE SYSTEM

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ABSTRACT :

*Francis Bacon introduced the experimental method in the 16th century. An Indian scientist, philosopher, or king in the Buddha period named **Payasi** did several famous experiments and questioned the idea that there are awards and punishments in the afterlife. He shows up as an atheist who runs several tests to prove that there is no such thing as a soul. The argument in the article is that experimentation exists in Indian literature, as does a scientific bent of mind. Also, all Indian philosophical systems—**Nyaya-Vaisesika, Sankhya-Yoga, Advait Vedanta, Buddhism, Jainism, and Lokayata**—agree that the best proof is experienced (Pratyaksh pramana). This deep understanding shows how committed India has always been to scientific inquiry or temperament. Ancient Indian thinking was based on scientific principles and put a lot of weight on facts and logic. India's history of scientific temper goes far beyond what is told in the West. This shows that our intellectual tradition has always encouraged people to be curious and think critically. Ancient Indian philosophy has had a big effect on current science in many important ways, including the idea of Pramana (reliable ways to know). Pramana is a word that was created by ancient Indian thinkers to describe proper ways to learn. **Direct observation (pratyaksha), inference (anumana), comparison (upamana), and testimony (shabda)** were some of these. By emphasizing facts and logic, this organized way of looking at information sets the stage for scientific inquiry. Proof comes from experience and observation. The scientific method is in line with this focus on direct observation and real-world proof. This study aims to find out what writings and practices are already out there in the ancient Indian knowledge system.*

KEY WORDS: *Indian knowledge system, scientific temper, scientific inquiry, Indian philosophy*

INTRODUCTION:

An overview of scientific temper

Scientific temper is more than just a set of skills or facts; it's a way of thinking or acting that is based on reason, doubt, open-mindedness, and a dedication to asking questions based on proof. In modern science and critical thought, it is the basis for everything. It helps people and groups understand how to live in a complicated world.

At its core, scientific temper means being ready to question, study, and analyze social and natural events by carefully observing them, conducting experiments, and using logic. People are

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encouraged to question their beliefs, question their assumptions, and look for answers that can be proven. This method encourages intellectual curiosity and a spirit of inquiry, which leads to new ideas, growth, and better ways to solve problems in many areas of human life.

The scientific temper isn't just found in science; it's in everything we do, from making decisions about government to making decisions about our own lives. It gives people the power to make decisions based on facts and logic instead of bias, superstition, or dogma. In a world full of fake news and pseudoscience, developing a scientific temper is becoming more and more important for telling the truth from lies, promoting informed citizenship, and protecting democratic ideals.

Scientific temper is important for more than just empowering individuals; it also changes society and promotes long-term growth. Societies that value science tend to place a high value on education, put money into study and new ideas, and encourage a culture of intellectual debate and critical thinking. By teaching people about science, these societies are better able to deal with tough problems, lower risks, and take advantage of chances for progress and growth.

In addition, a scientific temper encourages people of all backgrounds to work together and include everyone, regardless of their culture, religion, or ideology. It promotes talking and sharing thoughts, which helps people from different cultures understand and value each other. Promoting a scientific temper is necessary for promoting peace, harmony, and cooperation among countries and peoples in a globalized world where people depend on and are linked to each other.

But in today's world, scientific temper meets huge problems, even though it is very important. The spread of false information, pseudoscience, and anti-intellectualism is growing. This is because of corporate interests, ideological biases, and the rise of many digital media platforms. Also, long-standing social, cultural, and institutional barriers often make it hard to share scientific information and implement policies that are based on proof.

In conclusion, having a scientific temper is an important part of living in a society that is healthy, active, and forward-looking. It gives people the tools they need to think critically, act responsibly, and make important contributions to the progress of knowledge and the well-being of all people. We can unleash the full range of human creativity and make the world more fair, just, and healthy for future generations if we adopt a scientific temper.

IKS and its significance

As an old and complete system, the Indian knowledge system includes many fields, such as philosophy, science, health, math, astronomy, the arts, and more. The Indian knowledge system is based on traditions and writings that are thousands of years old, like the Vedas, Upanishads, and epics like the Mahabharata and Ramayana. It has left an indelible mark on the intellectual history of the world. Not only does it add to our understanding of the past, but it can also help us understand the present.

Philosophy is one of the most important parts of the Indian way of knowing. Indian philosophy is known for its in-depth, varied, and nuanced approaches to exploring basic questions about being, awareness, right and wrong, and the nature of reality. Different schools of thought, such as Vedanta, Nyaya, Vaisheshika, Samkhya, Yoga, and Mimamsa, have different ideas about these issues. This leads to a lot of philosophical discussion that still affects philosophical discussions around the world.

Indian math has also made important contributions, most famously by creating the decimal system and the idea of zero, which changed the way math is done all over the world. Indian scientists also made progress in geometry, trigonometry, and algebra, which set the stage for future progress in these areas.

Astronomy was very advanced in ancient India. Astronomers were able to correctly predict what would happen in the sky and make very complex tools for studying the stars. The astronomical works of *Aryabhata, Brahmagupta,* and *Bhaskara* show how rich India's astronomical history is. Their discoveries and ideas have had a huge impact on the growth of astronomy around the world.

Ayurveda, an ancient Indian method of medicine that focuses on how the mind, body, and spirit are all connected, made medicine very successful. Many of the practices described in Ayurvedic books

are still used today and are becoming more popular in the West. These practices include preventative medicine, herbal medicine, and surgery.

Indian arts, like *music, dance, literature*, and ***building***, are very important to the Indian way of knowing. These artistic forms have deep roots in spiritual and cultural practices. They show the country's rich history and give us a glimpse into its social, religious, and philosophical beliefs.

Also, the Indian knowledge system puts a lot of weight on moral values. It stresses ideals like ***ahinsa (nonviolence), dharma (duty or righteousness),*** and ***karma (action and its results).*** People and communities continue to use these moral principles to help them deal with moral problems and live together peacefully.

The Indian education system is important for more than just what it has done in the past. In today's interconnected world, where different points of view and approaches from different fields are respected more and more, the lessons learned from Indian tradition can help us solve modern problems. The Indian knowledge system keeps opening up new ways to learn and come up with new ideas, whether it's in the areas of sustainable development, holistic healthcare, or philosophical research. To stay a developed country, India had its own strong science culture and research history. Its ideas are still being found to be very useful and important today in fields like mathematics, linguistics, logic, aesthetics, psychology, management, and wellness sciences, to name a few. A lot of these discoveries are being made by people who aren't in formal higher education or study, though, because they are interested and want to help. These kinds of findings have been shown off and talked about at several recent conferences. They helped more people understand how rich and difficult ancient India's information discipline was.

But to do more systematic research and turn the insights into useful applications, a lot of young people in India need to be taught about their traditional knowledge, and their combined brain power needs to be used for more research and innovation. This can only be done through an official college or university.

Epistemology of IKS and scientific bent of mind

Indian knowledge has its roots in old philosophical and scientific traditions. It has led to the development of a wide range of scientific practices. In the Indian knowledge system, these are some important parts of science practice:

Looking at things and trying things out: Indian scholars stressed how important it was to understand the natural world through direct observation (Pratyaksha) and real-world proof (Pramanas). Observational astronomy, for instance, involves keeping very close records of celestial bodies and events for long periods.

Ayurveda was an old Indian system of medicine that learned about the body and health by carefully watching symptoms, diagnosing pulses, and seeing how treatments worked.

Questioning and sorting in a planned way: Indian scientific writings often showed a methodical way of putting together information. For example, the Charaka Samhita and Sushruta Samhita, which are important texts in Ayurveda, put diseases, medicinal plants, and surgical operations into groups based on patterns and rules that were seen to be true.

Indian mathematicians came up with organized ways to solve math problems, like making geometric proofs and algorithms for arithmetic processes.

Progress in mathematics: Indian scientists made important advances in geometry, algebra, and number theory. The idea of zero (Shunya) and the decimal system were huge steps forward in mathematics that set the stage for modern studies. Aryabhata's work in the 5th century CE introduced trigonometric functions and made it easier to do calculations in astronomy.

Observations and calculations about the stars: Indian scientists in the past made accurate observations of things happening in space and used complex math to figure out how planets would move and when eclipses would happen. An old astronomy book called the Surya Siddhanta gave thorough instructions on how to figure out the positions of planets, eclipses, and the length of the solar year.

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Philosophy and logic through experimentation: In Indian philosophical traditions like Nyaya and Vaisheshika, things were analyzed and knowledge principles were set through rigorous logical reasoning and discussion. For example, the Nyaya school came up with a methodical way to look at logic that included ways to argue and draw conclusions.

Innovations in technology: Indian engineers and craftsmen were very good at coming up with new ways to do things in metalworking, building, and city planning. Their skill in building and sculpture was shown by the complex temple complexes they built, like the Khajuraho and Ellora temples.

The Rasaratnakara and other metallurgical treatises explained how to mix metals and make high-quality alloys for tools, weapons, and artifacts.

Integration across disciplines: The Indian knowledge system often combined ideas from different fields because it understood that all kinds of knowledge are linked. Ayurveda, for example, used ideas from science, chemistry, botany, and psychology to look at health and illness as a whole.

Science, scientific temper, and IKS

A lot of different types of scientific research were used in ancient India, including observation, theoretical speculation, and real-world applications. Modern science as we know it today didn't start until much later, but the ancient Indian civilization made important advances in many scientific fields, such as medicine, astronomy, math, and metalworking.

Math: Indian scientists in the past came up with very complex ideas and methods for math. The decimal number system, which includes the idea of zero, may have been their most important addition. This number system, which is built on powers of ten, changed the field of mathematics by making it easier to write numbers. It served as the basis for math and algebra processes, as well as for progress in geometry and trigonometry. These fields got a lot of help from famous scientists like Aryabhata, Brahmagupta, and Bhaskara.

Astronomy: In ancient India, astronomy was very important, and experts spent a lot of time studying the stars and how they moved. The Siddhantas, which are old astronomy texts, gave a lot of information about where planets were, how to measure time, and eclipses. The Aryabhatiya, which was written by Aryabhata in the 5th century CE, had new ideas like the heliocentric model of the solar system that came before similar ideas in the West. In addition, Indian scientists made complex tools for measuring and observing the sky, like the astrolabe and sundial.

Medicine: Ayurveda is an old Indian system of medicine that is one of the world's oldest complete healthcare systems. The Charaka Samhita and Sushruta Samhita are two Ayurvedic texts that go into great depth about the human body, how diseases work, and how to treat them. Ayurvedic doctors used a mix of herbal medicines, changes to food, and ways of living to keep people healthy and treat illnesses. The descriptions in the Sushruta Samhita show that ancient India also had advanced surgical methods, such as plastic surgery and surgery to remove cataracts.

Metallurgy: The ancient Indians were very good at metallurgy. They knew how to get different metals out of rocks, clean them up, and mix them. India made a lot of progress in its metalworking skills during the Iron Age. This made it possible for iron and steel to be used in many things, like tools, weapons, and buildings. The Iron Pillar of Delhi, which dates back to the 4th century CE, shows how skilled Indian metalworkers were. It has stood the test of time for over a thousand years without rusting.

In general, old Indian scientists tried to understand the natural world by observing it, doing experiments, and thinking about it in a theoretical way. Even though the methods and frameworks used may be different from modern science, the work of old Indian scholars paved the way for future scientific progress and continues to inspire people to ask questions and learn more in many areas today.

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CONCLUSION

When you look at scientific research in ancient India, you can see that there is a long history of careful observation, organized reasoning, and new technologies. India made important and varied contributions to science and technology, including mathematics, astronomy, medicine, metallurgy, and architecture. These contributions are often overshadowed by those of other cultures.

Indian minds from long ago were very interested in learning about the natural world and how it works. They carefully watched and tested things, and then used what they learned to come up with complex ideas and useful solutions. One example is how the decimal system and the idea of zero changed the field of mathematics and set the stage for modern algebra and arithmetic. In the same way, India's progress in astronomy, such as making accurate predictions about celestial events and making better astronomical tools, showed how well it understood the universe.

In the field of medicine, Ayurveda grew into an all-encompassing system that focused on preventative care, whole-person health, and the connection of the mind, body, and spirit. In Ayurvedic texts, the healing qualities of different herbs and minerals were written down, along with surgical methods for treating a wide range of illnesses. These efforts not only changed the way medicine was done in India, but they also spread to other parts of the world and shaped the growth of medical science around the world.

Also, Indian architects and metallurgists were very good at using advanced methods like alloying, casting, and forging to make very complicated structures and artifacts. In ancient times, India was very good at engineering and technology, as shown by its well-preserved cities, complex temple structures, and historical metalwork.

Even with these great accomplishments, the scientific spirit in India's knowledge system has had problems over the years, such as changes in politics and society, colonialism, and the closing down of traditional schools. It was during colonization that indigenous knowledge systems were pushed to the side and distorted, as Western ideas about science and reason took over academic conversation.

But more and more people are realising that India needs to bring its scientific history back to life by combining traditional knowledge with new scientific methods that can help solve problems in the present. There is a renewed dedication to building a culture of scientific inquiry rooted in India's rich intellectual traditions. This is shown by the growing support for programs that teach people about science, protect traditional knowledge, and encourage research across disciplines.

In conclusion, the scientific spirit in the Indian knowledge system has a long history of questioning, coming up with new ideas, and adapting. India has in the past made important contributions to science and technology, but its legacy goes beyond its historical successes and includes a way of life based on intellectual exploration, curiosity, and critical thinking. India can use its rich history to help solve important global problems and advance knowledge for the good of all people by embracing its history and encouraging a culture of scientific research.

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