



The Untold Journey of Indian Father of Atomic Theory from Kashyap to Maharshi Kanad

- Prof. Walunj Aishwarya Barku

India, a country which is pioneer of several factual theories and concept but remain unrecognized and unfortunately credit of those inventions and discoveries goes to foreigners. Modern-day technology owes immensely to unsung Indian scientists who silently pursued their groundbreaking research in the dimly lit corners of their homes despite of any world-class laboratory facilities viz. **Shankar Abaji Bhisey** who designed an indoor coal-gas generator, when he was only 14. By his early 20s, he had already invented electrical bicycle contraptions, a station indicator for Bombay s suburban railway system, tamper-proof bottles and a cutting-edge grocery weighing machine that earned him the first prize at a British inventor s contest. However, Bhisey is most recognised for his iconic Bhisotype, a type-casting machine that revolutionised the printing industry. In one minute, the machine could cast and assemble 1200 different types automatically. **Gopalswamy Doraiswamy Naidu** revered as the „Edison of India . The creator of the first electric motor in the country is also acknowledged for his wondrous inventions like the mechanical calculator, the ticket vending machine, early electric razor, fruit juice extractor, kerosene-run-fan and a projection TV. Back in the days when women were barely visible in the scientific domain, **Anna Modayil Mani**, a distinguished meteorologist and physicist who astounded the world with her amazing inventions like Ozonesonde a device which measures

atmospheric ozone, before the world even understood the ozone layer's functions. **Narinder Singh Kapany** who is considered as the Father of Fibre Optics, this Punjab-born scientist's glorifying discovery of communication through optical fibres paved the way for not only internet but also medical marvels like laser surgeries or endoscopic imaging.

Ancient Indians were not exception to this. In retrospect, we will be enthralled to be a part of rich heritage of countless discoveries that India made. This article owes to pay tribute to one such unsung Indian discoverer whose contribution deserve to be hailed across the globe but largely went unnoticed. Our ancient sages, philosopher, astronomers, mathematicians and scholars made immense contribution through their inventions and discoveries. They were not sages or philosophers instead scientist of their era as religion and science were not so far different. Aryabhatta, Charaka, Sushruta, Bhaskaracharya, Bramhagupta, Varahamihira and Budhayan etc. gave an invaluable contribution in the fields of mathematics, science and medical science.

Kanad is one of the great physicist of ancient India. He discovered atomic structure, atomic theory and laws of motion 2600 years ago. He was believed to have born in the year 600 BC or 800 BC in Gujarat, India. His father was a philosopher Ulka. His birth name was Kashyap. As a child, he always accompanied his father

and observed many things. But despite of all those things around him, his interest was always on the smallest things. He was able to look beyond the general concepts which were underlying in the universe. When he was able to conceptualize the idea of the smallest particle, he noted down his ideas and was able to explain it to people. Many people also with great reverence call him Acharya Kanad.

When Acharya Kanad was young, he always admired the rice grain. It was tradition of the early Hindu family to scatter the grains of rice along the

street, for the people to follow it as a ritual. The young boy was looking at the ant eating the rice. The idea that fascinated the Kashyap was a small piece of rice can be a

food for small creatures like an ant, but it requires lot of grains to make a meal for human. The idea of looking deep and beyond was highly fascinating, which suggested him a concept of "Anu", the smallest particle and the journey from Kashyap to Kanad has got started. The theory of "Anu", the atom was postulated even before Dalton's theory. But, many people do not consider it, as it is not highly empirical. He was able to bring a theory on the creation and existence of the universe.



Kanad was the founder of „Visheshika one of the six major schools of Vedic philosophy from ancient India. Kanad's Visheshika school explains about the creation and existence of universe by proposing an atomistic theory. Visheshika is deemed one of the earliest known systematic realist ontology in human history. Ontology, traditionally categorized under metaphysics, it is philosophical study of nature and existence of beings and entities, their grouping and hierarchy, subdivision and related paraphernalia. He described the universe with six categories, which are Dravya, which is defined as a substance. Guna, defined as the quality. Karman, defined as a motion. Samanya, defined as Generic Species. Visesa, defined as a unique Trait, and Samavaya is defined as inherence.

According to Maharishi Kanad's atomic theory -

1. Everything can be subdivided
2. Over time, subdivision leads to creation of parmanu (atom), which are the smallest entities
3. Parmanu is indivisible; it cannot be further divided.
4. Thus, subdivision of everything cannot happen forever; it has an end
5. Atom is eternal, i.e. indestructible
6. It is the basis for all material existence
7. Parmanu has unique identity with a specific property. This property is same as the class of substance to which it belongs to
8. It is invisible to the naked eye
9. Through a process that involves heat or other factors atoms could be combined in various ways to produce



chemical changes

10. Parmanu or atom can have two states- state of motion and absolute rest.

Greek philosophers Leucippus and Democritus later gave their explanations on the concept of atomic theory. This was followed by Dalton's theory. But Maharishi Kanad's theory is far more advanced than those forwarded later by these scientists.

According to Dalton's atomic theory -

1. All matter is made of extremely small particles called atoms
2. Atom is indivisible
3. It is indestructible
4. In terms of mass and properties, all atoms of a given element are identical
5. Two or more different kinds of atoms form a compound
6. A chemical reaction is a rearrangement of atoms.

What Dalton has propounded in the 18th-19th century through chemical experiments is similar to what Kanad proposed in 600 BC. While Maharishi Kanad's explanations are enmeshed in Philosophy, Dalton's in Chemistry. But results are the same. So who discovered the concept of atomic theory? Kanad or Dalton? It is upon the readers to decide based on the aforementioned facts.

Ancient India had many amazing thinkers, philosophers, scientists and mathematicians whose contributions predated some of the contributions made by scientists today. Their ideas were not only innovative but they were far-reaching as well. They were certainly ahead of their times and their contributions to science were so progressive that their inventions are still being used to this day.

Most of the ancient Indian scientists made discoveries that predated western scientists by centuries and enjoyed great privilege and respect for their discoveries. Through their unprecedented thinking, their ideas went to benefit society for the better and made Ancient India great.

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