

## **Episode No : 29**

### **Artificial Intelligence in ancient treatises**

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**Anchor:** Friends, in the last episode of the radio serial Aany Vala Kal we heard that although the idea of Artificial Intelligence is a relatively new one, it is a matter of coincidence that the imagination of the authors of our ancient texts seem to have paralleled or matched what is today called machines with artificial intelligence. There is no debating the fact that such machines never existed in ancient times. However, imagination knows no bounds and the flights of imagination of these ancient writers, certainly allowed them to write about what can be interpreted to be similar creations. There is also no doubt that there is no relationship between their imagination and the way AI-empowered machines subsequently developed in modern times. These two have no connection whatsoever. However, a simple study of these magnificent flights of imagination, juxtaposed against the developments of today is certainly a source of entertainment.

In the last episode we discussed about Yog vashist, a treatise written by Maharshi Balmiki. We introduced you to the mechanical-warriors, Dam, Vaal, and Cut as well as the demoness named Kar-kati. However, it seems that there are others who should be added to the list. Let us then, explore other ancient epics to identify the situations wherein devices that could be said to mimic the AI-machines of today, may be found.

So, pack your scientific perspective, give up pre-conceived ideas and join us on a journey of amazing imagination. On this journey how can we leave Rishi and Sarika behind? Their father will come along as well. Let's go.

**Scene change music: (fades out)**

**Characters**

**Lankini: (Character from Ramayan)**

**Hanuman: (Character from Ramayan)**

**Papa: (45 years)**

**Sarika: (daughter)**

**Rishi (son)**

**Scene 1**

## Drawing Room. Morning

Ramayan is being aired on TV. Hanuman is about to enter Lanka where he encounters Lankini, the Gate Keeper who prevents him from entering Lanka.

**Lankini:** You foolish monkey...do not advance another step. Stop where you are! This is the command of Lankini. If you take another step forward...

**Hanuman:** What will you do, if I do so?

**Lankini:** Stop! Stop! Stop, I say. Look at you... marching forward! Aren't you afraid to die, monkey?

**Hanuman:** Of course I am. However, you do not look like the Goddess of Death.

**Lankini:** As far as you are concerned...consider me to be the Goddess of Death. I am Lankini...the Protector of Lanka. Day and night I scrutinize everyone entering Lanka. Not even the breeze can enter Lanka without my permission.

**Hanuman:** So, you are a gatekeeper...a lady gatekeeper. You have a tough job. So, please step aside, my Lady Gatekeeper and so that I may enter.

**Lankini:** Your audacity must be punished. Here...face this!

**Sound of blows**

**Hanuman:** Oh dear, you have resorted to violence! Such anger is not good.

**Sounds of blows**

**(Lankini in original) Hanuman:** You are raining blows on me...now, if I were to lose my temper it would not bode well for you.

**Lankini:** What! You dare threaten me! Aren't you afraid of my huge size? Take this...and this.

**Sounds of blows**

**Hanuman (drawing a deep breath):** No, you won't listen to me...so, let it be the way you want.

**Sound of one huge blow and a shriek from Lankini.**

**Hanuman:** O dear, dear! You could not even face just one punch from me...your poor nose is quite flattened. My apologies. I did try to reason with you but you did not listen to me. Now...please move to one side. I have to meet the King of Lanka and I do not have much time.

**Lankini (croaking):** Who are you, O Powerful one? You are not a divine being or Dev, or a kinnar or a gandharv...they do not have the courage you have shown. Please introduce yourself...O might one.

**Hanuman:** I am a mere monkey...one of those who serve Lord Ram, the King of Ayodhya.

**Lankini:** If this is how strong a mere servant is, I wonder what will happen if the King himself attacks...go Brave One....enter Lanka, I do not think you are in any danger here.

**Change of scene music (fades out)**

**Papa enters.**

**Papa:** What's up, Rishi, Sarika?

**Sarika:** Papa, since perforce we are not able to go to school these days and because they are broadcasting Ramayan once again on TV, we thought we could see it once more to pass the time.

**Papa:** Hmmm, the media people are also recycling old stuff to pass the time.

**Rishi:** Ramayan is timeless; we can watch it any number of times. Today they broadcast the episode on Lankini and Hanuman...it was wonderfully filmed.

**Papa:** Rishi, do you think Lankini was made of flesh and blood? Look at her girth...and how she challenged such a powerful entity.

**Sarika(laughing):** What do YOU think, Papa? Do you think she was a robot?

**Rishi?** What is so funny? Do you really think a human being could be so enormous?

**Papa:** Think! Can any gatekeeper be on duty 24 hours a day?

**Sarika:** You have a point! And apart from Lankini, we have never heard of another gate-keeper who is positioned at the main gate of Lanka.

**Rishi:** This indicates Lankini was no ordinary woman. She was, most likely, a robot with artificial intelligence.

**Papa:** Correctly speaking you should say Lankini approximates the idea of a robot with artificial intelligence because robots did not exist in those days. The robust imagination of the writer created Lankini...which resembles greatly our modern smart machines with artificial intelligence.

**Rishi:** That is what I meant to say, Papa.

**Papa:** You know, there is a character in Ramayan that I find utterly fascinating. The more I think about it the more mysterious it appears.

**Sarika:** Is it Ravan?

**Papa:** No.

**Rishi:** Hanuman?

**Papa:** Not Hanuman. His character was created to exemplify the spirit of service without any demonstration of pride in one's prowess.

**Sarika:** Then who?

**Papa:** Kumb-Karn.

**Sarika and Rishi (simultaneously):** Why Kumbh-Karn?

**Papa:** It is said that Kumb-Karn slept for six months and remained awake for the other six. He was adept in the use of many divine weapons. Weapons... you could be excused for thinking were missiles with artificial intelligence! He was extremely powerful. Do you think such a being was a mere mortal...made of flesh and blood?

**Rishi:** I agree Papa...but what does it mean that he slept for six months and remained awake for six months?

**Sarika:** This does not sound like the attribute of a normal living creature of flesh and blood.

**Papa:** I think the creator of this imaginary creature imagined an enormous machine with artificial intelligence. However, the creativity was limited to giving it human characteristics since such machines did not exist in those days.

**Sarika:** What do you mean?

**Papa:** See...when a person works very hard, exhaustion sets in. The person needs to rest just as long; to get back to normal levels of energy again.

**Sarika:** Like we work during the day and refresh ourselves by sleeping through the night.

**Rishi:** Manual labourers go to sleep almost as soon as night falls and sleep deeply till day break because they work hard during the day.

**Papa:** The more you labour; the more sleep you need to refresh yourself. Thus, the creator of the Ramayan must have reasoned that if someone works tirelessly for six months then that person will surely need six months of sleep to be refreshed. Machines, of course, do not need such prolonged periods of rest.

**Rishi:** Maybe there was this gigantic robot that was exorbitant to maintain...and so they inactivated it for six months at a time. I mean that is what I thought when I heard about its diet.

**Sarika:** Or maybe its parts got worn out after six months of constant use and repairing it took six months.

**Papa:** No, no...I do not think anything like this ever happened.

**Sarika:** How can you be so certain?

**Papa:** This is because there were no machines like this in those days. All what they wrote was rooted only in their imagination. It had no base in reality. Now, since such machines never existed, what is the point of talking about worn out parts and maintenance? You have surpassed the creator of Ramayan in the power of imagination.

**Rishi:** That is because in our times we do have machines like these...so it is natural that we should project forward based on those and thus exceed the imagination of the creator of the Ramayan.

**Sarika:** Is there any other character described in the Ramayan that you like?

**Papa:** Yes, Bali. Sugriv's elder brother. I find his character somewhat strange. He does not seem to fit the description of a creature made of flesh and blood.

**Rishi:** Why so, Papa?

**Papa:** Because it is written in the Ramayan that half the power of any adversary would be assimilated by Bali

**Sarika:** That is why Lord Ram hid behind trees and shot him.

**Papa:** I think I must thank the producer of the TV serial on the Ramayan...at least it gave you the opportunity to learn the finer points of the Ramayan.

**Sarika (showing off):** It isn't like that at all.

**Papa:** Now think. Can you think about any creature that can assimilate half the power of any creature facing it in a challenge?

**Rishi:** No.

**Papa:** I think in his imagination the creator of the Ramayan has described a phenomenon that is yet to happen...it is still in the future. Like the nascent technology of the wireless transmission of electricity.

**Rishi:** You mean that someday in the future... we may have machines capable of accepting or attracting power from another machine without the need of wires.

**Papa:** Absolutely! Currently, the technology is at an experimental stage. However, some day it may be available universally.

**Sarika:** Oh! And the creator of the Ramayan actually imagined such a technology too.

**Papa:** That would not be an accurate way of stating it. It is better to say that his imagination appears to match, to a large extent, a technology being developed today. He would not have had the faintest inkling of this possibility while he was giving full flight to his powers of imagination. He needed to imbue Bali with immortality and to make him invincible...so he resorted to this imaginary stratagem.

**Rishi:** I am honestly confused. Should I congratulate the creator of the Ramayan on his powers of imagination that led him to describe what can only be said to be machines with artificial intelligence or should I credit you for your scientific perspective that led you to spot the similarities?

**Sarika:** Both!

**All laugh**

**Scene change music (fade out)**

**Scene 2**

**Drawing Room. Evening**

**Sarika and Rishi are arguing but the words are not clearly audible. The bell rings.**

**Rishi:** Looks like Papa is back. Sarika, Go and open the door.

**Sarika (voice indicates she is moving away):** Lazy lump!

**Papa enters**

**Sarika:** Here you are, Papa. I have been waiting for so long for you to come home.

**Papa:** Why? Have you cooked up a surprise for me?

**Rishi:** You think she will cook something? She doesn't even lift a finger. If a fly sits on her face she calls me to drive it away.

**Sarika:** As if Rishi slaves all day over housework.

**Rishi:** Of course I ...(trails off)

**Papa:** Stop it, you two. (after a pause) But tell me Sarika, Why were you waiting for me?

**Sarika:** They are re-broadcasting an old serial on TV these days.

**Papa:** Which one?

**Rishi:** Don't you know, Papa. It is the Mahabharat.

**Papa:** OK.

- Sarika:** Today we say a character called Ghatotkach.
- Papa:** Yes, he was the son of Bheem, one of the Pandavas and his demoness wife, Hidimba. He was bald when he was born. His forehead resembled that of an elephant. It looked like the ancient percussion instrument called Ghat... a fact that gave him the name Ghatotkach. The word Utkach in Sanskrit means hairless or bald.
- Rishi:** Interesting.
- Papa:** From the descriptions in the Mahabharat we know he was quite large. He had magical powers that allowed him to assume an enormous size. He was so strong that he could, with just a touch of his toe send a chariot hurtling. He sided with the Pandavas during the great war.
- Rishi:** That makes sense since he was the eldest son in the next generation of the Pandavas.
- Papa:** His last encounter on the battlefield was with Karna. Karna deployed many divine weapons to subdue him. Even when fatally wounded, Ghatotkach managed to amplify his girth so much that he crushed one akshauhini warriors under his bulk.
- Sarika:** One akshauhini...how many is that?
- Papa:** According to the descriptions available it means a total of 21,870 chariots; 21,870 elephants; 65,610 horsemen and 109,350 foot-soldiers.
- Rishi:** If you add all these numbers you get about 2 lakh 87 thousand warriors. To claim that so many perished under the body of a dying Ghatotkach seems like a tall tale indeed.
- Papa:** It is likely that these are inflated numbers. The important point is that according to the writer of the Mahabharat, Ghatotkach managed to enlarge his body significantly...so much so that many soldiers were crushed to death by his dead body.
- Sarika:** It follows therefore that he could not have been a creature of flesh and blood.
- Papa:** That is exactly what I think. Perhaps this was the imaginary idea of a huge machine that under normal conditions could be crumbled to assume a normal smaller size but which could, when situation demanded, amplify its size to a gigantic one. It also appears to be able to take informed decision about when to assume the giant size.

**Rishi:** Ghatotkach's power, his size, his magical abilities...all seem to have been based on his demoness mother, don't you think so, Papa?

**Papa:** Well, thank the Lord that you have begun to understand.

**Sarika:** He was quite silly earlier, wasn't he Papa?

**Papa:** There is another similar character in the Mahabharat. His name is Barbarik.

**Sarika:** Barbarik...who was he?

**Papa:** According to the genealogy given in the Mahabharat, Barbarik was the son of Ghatotkach and Ahilavati. It is said he learnt archery from his mother. He worshipped Ma Adishakti and gained three divine arrows as boons that made him totally invincible.

**Rishi:** Was he a greater archer than Arjun?

**Papa:** Well, that is what the Mahabharat says. When war was announced, Barbarik packed his arrows and set off to join the battle. He was an ethical person. He was one of the elder sons of the new generation of the Pandavas but had announced that he would fight on behalf of the losing side. Since his quiver had only three arrows, no one took Barbarik seriously.

**Sarika:** What happened next, Papa?

**Papa:** Sri Krishna was aware about Barbarik's powers. He disguised himself as a Brahmin and made fun of Barbarik's paucity of arrows in a war of such epic proportions. Barbarik responded by saying that just one of his arrows was enough to decimate all the assembled warriors. It would then, return to the quiver. If he deployed all three arrows, the Universe would be destroyed.

**Rishi:** So were these arrows or atom bombs?

**Papa:** The description of these imaginary weapons does resemble a destructive atomic missile. However, Sri Krishna wanted to make sure he was addressing the authentic Barbarik. Sarika, Do you know how he made sure of this?

**Sarika:** How?

**Papa:** He challenged Barbarik to perforate all the leaves on a nearby peepul tree. Barbarik unleashed an arrow that stripped all the leaves on the tree in a moment. Then it began to encircle Sri Krishna's feet. Surprised Lord Krishna looked down to realize that he had stepped on one peepul leaf and the arrow was targeting that as well.

**Rishi:** So this means the arrow worked not just like an atomic missile but like an imaginary atomic missile equipped with artificial intelligence.



**Papa:** Lord Krishna disguised as a Brahmin asked Barbarik for alms. Barbarik asked him to name whatever he wanted.

**Sarika:** OK.

**Papa:** Sri Krishna asked Barbarik what would happen if he found himself unable to gift what was demanded as alms. Barbarik replied that come what may, the brahmin would not return empty handed.

**Sarika:** Did he ask for the three arrows?

**Papa:** No, he asked for Barbarik's head...as an ingredient for the worship of the holy soil where the war would be fought.

**Sarika: (surprised)** Oh!

**Papa:** And the large-hearted Barbarik agreed to give the brahmin what he demanded. The only request he made was that he should be able to witness the great war. So, Lord Krishna decapitated him and placed his severed head on a nearby hillock. Barbarik watched the entire war unfold from this vantage point. They say he even roared at times.

**Sarika:** His is indeed a unique character described in the Mahabharat.

**Papa:** In return for this sacrifice Lord Krishna granted him the boon that he would be known and worshipped as Krishna too. They say Khatu Shyam Ji Maharaj who is worshipped is no one other than Barbarik.

**Sarika:** When a severed head roars, we can be certain it is not a creature of flesh and blood.

**Rishi:** Maybe it was the imaginative rendering of what we would call an intelligent machine with artificial intelligence that when dismantled could still accept some inputs...maybe the so called head corresponded to a C.P.U.

**Papa:** Finally! At long last you have said something of note. Indeed, we can explain the imagination of the creator along this line of thought.

**Sarika:** Papa, In today's episode on TV they showed that Arjun was about to give up his life on a fiery pyre because he had been unable to fulfil his vow. Just then, Jayadrath enters the scene and Lord Krishna tells Arjun to kill Jayadrath. Papa, this Jayadrath....

**Papa:** According to the Mahabharat, Jayadrath was the King of the land of Sindhu and the husband of Dushala...the only sister of the Kauravas. His father was King Vridhakshatra. Jayadrath had been granted the boon that the head of whosoever caused his head to fall onto the ground would likewise burst into pieces. During the great war, Abhimanyu, the son of Arjun had entered a

military formation called chakravyu...at that point of time Jayadrath had hit him fatally from behind. A furious Arjun had vowed to kill Jayadrath the very next day, failing which he would kill himself.

**Sarika:** Abhimanyu was Arjun's son, wasn't he?

**Papa:** Evening had fallen but Arjun had not been able to kill Jayadrath the next day, so Lord Krishna used his powers to hide the sun behind the clouds. Darkness fell. Arjun began to prepare to give up his life in the pyre. Jayadrath came out to gloat. Just then, Lord Krishna caused the sun to manifest brightly again.

**Sarika:** That must have spelt the end for Jayadrath

**Papa:** Arjun severed Jayadrath's head from his body with just one arrow. He also caused the arrow to deliver Jayadrath's head to Vridhakshatra's lap as he was meditating. This sudden event made Vridhakshatra hurriedly stand up and caused Jayadrath's head to roll off from his lap onto the ground. The moment Jayadrath's head touched the ground, his father's head exploded into a hundred pieces.

**Rishi:** Papa, how is this possible?

**Sarika:** Perhaps the creator of the Mahabharat fashioned Jayadrath in the image of a robot with artificial intelligence; the head of which is stuffed with explosives such that when it detonates, it kills the other warriors nearby.

**Papa:** Wow, Sarika...what a scientific explanation.

Rishi: She is MY sister after all!

All laugh.

Scene change music (fades out)

**Narrator:** Friends, In this episode of the radio serial Aany vala Kal you have heard the imaginative tales related in the epics Ramayan and Mahabharat...these tales today have found substance in the machines with artificial intelligence. However, bear in mind that the echoes we hear from these ancient epics are just tales of unbridled imagination; nothing more

In the next episode of the radio serial Aany vala Kal we will introduce you to a few selected Indian science fiction stories that have incorporated the concept of artificial intelligence.

So, don't forget to tune in...same day...same time...Till then, Namaskar.