

# CALCULUS & NARASIMHA AVATAR<sup>1</sup>

Calculus is the God Fairy with a magic wand, solving problems and deriving formulas in a marvelously quick way. In the 15th century it was felt that Geometry had arrived at a dead end, with no further progress possible to add to what Euclid had long ago proved with straight lines, circles and some solids and surfaces. When Descartes, in France, played with the idea of representing a point by two coordinates  $x$  and  $y$  (familiar to all children in their work with graphs) the door was opened for the study of a number of interesting and useful curves, and Geometry leapt a big jump forward. Then Calculus followed to study these curves in greater detail. Calculus (especially as studied in our college) has two main parts: the Differential Calculus and Integral Calculus. Theorems derived therein, especially those on maxima and minima, areas and volumes, are highly useful to engineers. Then, there are Differential Equations, about which we need know only this now: Every law in Physics or Chemistry depended on the solution of a differential equation. The methods of Calculus are quick and simple - therefore they were suspect first by Crystal, a great Algebraist who dubbed Calculus as Black Magic. This initial opposition led to defences being raised on sound principles and, after much controversy, Calculus is now towering high on true and sure foundations. It is acknowledged everywhere that Calculus is not an evil witch but a ministering angel.

But what has this Calculus to do with the Man-Lion Avatar of *Vishnu*? We can explain this by looking into the essentials of the story of the wicked *Asura Hiranyakasipu* whom the Lord killed. *Hiranya* nurtured hatred for *Vishnu* ever since his brother was killed by the *Lord of Vaikunta*, and *Hiranya* wanted to dethrone him from his divinity. He declared that everyone should swear *HIRANYAYA NAMAH* and, when his own son *Prahalad* proclaimed *VISHNAYA NAMAH*, the father visited on him cruel punishments.

By hard and severe penances *Hiranya* had earned one boon from *Brahma* against all fear of death. A humble *Bhakta* would simply ask for immortality, but *Hiranyakasipu* thought of himself so clever that he wanted to insure himself against all death by foolproof conditions. *Brahma* granted him the boon that *Hiranyakasipu* would not meet death:

1. from neither man nor beast;
2. at home or abroad;
3. day or night;
4. through living or non-living matter, and
5. in earth or heaven.

Despite this boon, *Hiranya* was killed by *Vishnu*. How was this done? Was *Brahma's* boon violated? No, *Vishnu* found loopholes in every one of the five pairs of the conditions. The 'clever' *Hiranya* was a fool. He was ignorant of human nature and of the world.

Let us study the five clauses in the boon.

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<sup>1</sup> Excerpt from a lecture delivered by Prof. K.N. Sundaresan at Berhampur Rotary Club on December 14, 1956

### 1. Man or beast

When the pillar burst, *Vishnu* sprang out in the form of a man-lion, a type of creation not common indeed, but such an admixture is not unfamiliar to us. How many men do not behave in a beastly way? Leave alone the hardened criminals, are not the common run of us often exhibiting animal nature in our conduct? On the other hand, some animals show what gentleness, sagacity, loyalty and even traces of brainwork like man, 'the rational creature'! Such a mix-up of man and beast, in different degrees and proportions, is common to all of us; but the clever *Hiranya* didn't know this simple truth; he thought they were exclusive and for that ignorance, he paid with his life.

### 2. Nor Home or Outside

Can a person privately at home be kind and be different publicly in the eyes of the world? A bad father or brother in the domestic circle cannot be a good teacher to his pupils in the school. Even Dr. Jekyll, to become Mr. Hyde, had to drink a potion to change his nature. *Hiranya* was ignorant of this and *Vishnu* taught us a lesson by killing him the doorstep where the world would meet home.

### 3. Not day or night

This ambitious aspirer to the throne of the universe has not watched a sunset or a sunrise when gorgeous colors suffuse the sky. He did not know that between day and night is an interval of twilight when sunbeams steal through the air by reflection and refraction and shed mellow light. *Vishnu* killed *Hiranya* at sunset hour.

### 4. Nor living nor non-living matter

The story says *Vishnu's* weapon that killed *Hiranya* was the nail in the claw which dug into his bowels. This finger nail on our palm comes clearly under both these categories. Modern factories know that machines suffer from fatigue and should be given rest periodically. The vegetables in our curry may not be said to be dead matter, but what do you say to a pill prescribed by a doctor? It is apparently non-living matter, but once inside our body it sets in motions so many chemical actions that we may really say our life gets sustenance from the pill. The dividing line between life and non-life is so thin; *Hiranya* did not know this, though he must have been a good eater.

### 5. Nor above nor below

Is not all this relative? If one point is east of another, are we to call it the east? It may be west to another third point. This pen is held above the table but it is below the ceiling. *Hiranya* was ignorant of this too. The story says he was laid on the lap of man-lion at the time he was killed.

We thus saw that *Hiranya* was not so clever after all. How did the bare simple facts escape him? The answer is that it was in his nature to think as he did, he couldn't just help it. The Tamil versifier of *Bagavatam*, for variety, uses for the name *Hiranya*, synonyms like *Kanaka*, *Swarna*, *Ponnan* - which all mean GOLD. So, can't we take the *asura Hiranya* to stand for Gold? His

insistence on the slogan *HIRANYAYA NAMAH* then would simply mean that his philosophy in life was *MONEY, MONEY, MONEY* as opposed to love of God. By this we should not mean that Gold versus God is the central theme of this *avatar*. Vishnu's own consort *Lakshmi* stands for Gold in the beneficent form of WEALTH. But gold or money or Mammon got by evil ways and used for oppressive purposes was *Hiranya*, the enemy of God, but gold earned by honest means and spent in munificence is *Lakshmi*, the beloved of our Lord.

Now the question arises: Is it the nature of Mammon to ignore transitional phenomena as *Hiranya* did? The answer is in the marvelous subject Calculus. Differential Calculus studies the growth of quantities which depend on other quantities - that is, it studies rate of growth. When time is one variable, this study is easy. Suppose a person goes to a shop and, after choosing for 15 minutes, buys goods for Rs. 15. Does this mean that the purchaser is a spendthrift who spends 50 lakhs per year? Rs. 15 for 15 minutes means Rs. 60 per hour; multiply this by the 24 hours in a day and 365 days in a year; it will be near half a crore of rupees. Is this not an improper way of calculation? Take an officer who gets a salary of Rs. 720 per month. It works to Rs. 24 per day, one rupee per hour. Is this the right picture of the officer who goes to office only 6 days in a week, only 6 hours a day? These examples will convince us of the quotation that follows: "Money is not a good example for the calculus because it generally comes and goes by jumps, not by a continuous flow; your income comes in only monthly and expenditures go out in sudden payments." That is to say, Calculus studies only continuous functions; when there's a break or discontinuity, our formula breaks down. Money is discontinuous as Mammon; that is, our *Hiranya* can only think in jumps - he does not recognize the betweenes.

So, our conclusion seems to be that instead of taking the Narasimha Avatar story as asserting the necessity of *Bhakti* or asserting the omnipresence of God, it would be more to the point to infer that Transition is the Law of Life. Evolution, not revolution, is what we should prize and adore.

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**COURTESY:**

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