Tall, winding creeper? An anthropometric study of Ravi Varma’s Hamsa Damayanti

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About the author

Subramoniam Rangaswami completed his basic medical education at the Medical College in Thrivananthapuram, Kerala and acquired postgraduate qualification from the Central Institute of Orthopedics, New Delhi. He held university teaching positions in Kerala from 1970 to 1976 before proceeding to UK for further training in Orthopedics. The five years he spent in the University of Liverpool and the Robert Jones and Agnes Hunt Orthopedic Hospital in Oswestry, UK, provided him with rich academic and clinical experience in several areas of Orthopedic Surgery. Rangaswami acquired his M Ch degree in Orthopedics from the University of Liverpool in 1979. On return from the United Kingdom, he took up the academic position as Professor of Orthopedics at Sri Ramachandra University, Chennai for eight years and as Dean, Gulf Medical College, Ajman, UAE, for the next six years where he created a robust system for Medical Education. He returned to Chennai as Vice Chancellor of Sri Ramachandra University in 2007, a position he held till retirement in 2012. He has a special fascination for the neurophysiological and musculoskeletal mechanisms that govern the upright human posture and gait and has performed many operative procedures on the spine and limbs to restore bodily proportions and symmetry. His other interests include visual arts, music and the emerging concepts in the evolution of consciousness. Rangaswami now lives in Bangalore.

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ABSTRACT

Raja Ravi Varma is recognized as the most celebrated painter of nineteenth century India. Hamsa Damayanti, oil on canvas painted in 1899, is one of his most admired works; and copies of the picture adorn the living rooms of countless homes in the country. It is suggested that a bodily disproportion in Damayanti’s figure can be recognized on a close study of the painting. This report describes how the discrepancy can be confirmed by anthropometric measurements. The two notable features are the increased height of Damayanti and a striking reduction in trunk height with a disproportionate lengthening of the lower limbs. There is no published report so far on such a discrepancy in Ravi Varma’s Hamsa Damayanti in the literature. These findings are discussed in the light of recommendations on bodily proportions in representative art by renaissance artists of Europe and instructions in Chitrasutra, the ancient Indian compendium on drawing and painting. A brief description of the changes that overtook the fields of art and science in the late nineteenth and early twentieth centuries characterized by a shift from positivism and from perceptual to conceptual mode of thinking and visual imagery is presented. It is concluded that the question of any symbolic or aesthetic motive the artist might have had in leaving a noticeable disproportion in the figure of Damayanti cannot be resolved with certainty.

Key words: Hamsa Damayanti, oil on canvas, representative art, disproportion, anthropometry.

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1. INTRODUCTION

Raja Ravi Varma is recognized as the most celebrated painter of nineteenth century India. His works heralded transformative changes in artistic expression in this country. Ravi Varma’s motifs were mostly characters and scenes from ancient Indian epics like the Mahabharata and Ramayana. Although he never traveled out of India, it would be fair to state that he was instrumental in introducing European ideals in representational art in this country. His greatest contribution was to bring unforgettable characters from the timeless Indian classics hauntingly close to contemporary aesthetic sensibilities. We see Kalidasa’s Shakuntala and princess Damayanti adorning countess living rooms today. He has been described as ‘a modern among traditionalists and a rationalist among moderns.’

Hamsa Damayanti, oil on canvass painted in 1899, is one of the most widely admired paintings of Ravi Varma. The theme in this composition is a story from Mahabharata. The gorgeous princess Damayanti, draped in an attractive red sari is shown here leaning to a pillar and listening to Hamsa, the royal messenger swan sent to her by her lover Nala. The beauty and poise of unruffled dignity as well as the grace and composure in her demeanor have won widespread acclaim from connoisseurs and art critics over the years.

Ramanujacharya’s inspired description sounds lyrical in several places and his recurring comments on the “height” and “tall form” of Damayanti intriguing. (Ramanujacharya C. R. 1925)

“This is poetry in paint; this is music played in colors.” (P. 13)

“The pillar does not show her height but only points to her tall form. The height should only be felt.” (P. 14)

“Every vertical line in the pillar or anywhere in the picture speaks in eloquent terms of her tall form.” (P. 14)

“It is in the suggestion of a climbing creeper that the beauty lies. The artist had deliberately kept her height hidden. He had shown only the creeper but the mind had been allowed to feel for itself her tall form.” (P. 17)

“Has he suggested the height? The erectness of her right leg is suggested by the flow of her robe from her left shoulder down to her right knee. It is a big sweep like the curve of a crescent.” (P. 17)

The “tall form” of Damayanti with its noticeable disproportion is the topic of this study. A few points may be mentioned in this connection:

- Simple viewing of Hamsa Damayanti is unlikely to draw attention to anything unusual in Damayanti’s figure.
- A prompted scrutiny however, raised doubts in the minds of many viewers on the incongruity of bodily proportions in the image.
- Some viewers pointed out an obvious discrepancy in which the trunk appears shortened in relation to the disproportionately long lower limbs.

2. AIM OF THE STUDY

This study was prompted by the recognition of the physical disproportion in Damayanti’s figure that called for further scrutiny and verification by anthropometric methods. Anthropometry is the study of the measurement of proportions, size, and weight of the human body. Anthropometric techniques are used in a variety of disciplines that include anatomy, art, anthropology, industrial design, ergonomics and criminology. The author was unable to confirm any previous report of a similar study on Hamsa Damayanti in the literature.

3. STUDY DESIGN AND METHODS

Prints of Raja Ravi Varma’s Hamsa Damayanti were downloaded from several websites and compared with authentic copies of the painting for accuracy of proportions. Prints from three websites in which precise correspondence of proportional details of Damayanti’s figure could be confirmed were used in this study. The original canvas in Sri Chitra Art Gallery in Thiruvananthapuram is reported to measure 35″ x 19.5″.

Computer prints measuring 417 mm x 224 mm were developed using CorelDraw x 13 version software. Head height (from the tip of the chin to the top of the head) was measured as 36.0 mm.
Head height was measured taking into account the 31° downward tilt of Damayanti’s head in the painting. A grid with sides 36.0 mm X 32.0 mm (unit height 36.0 mm for the ‘y’ coordinate) was superimposed on the prints. Line drawings of Damayanti’s figure by accurate tracing over the study prints were made separately for outlining and delineating body segments and proportions (Figures 1A & 1B). Each of the measurements was confirmed on the study print. The mean value of three measurements for each of the body segments was taken for the study.

4. NORMAL ANTHROPOMETRIC PROPORTIONS

Contemporary artists take the normal height of the adult human figure (standing erect) equal to seven and a half ‘heads’ (Perard 2003, Chari 2005). The unit ‘head’ represents the distance measured from the tip of the chin to the top of the head. Three ‘heads’ are taken for the head and trunk length (top of the head to the waist) and four and a half ‘heads’ from waist to heel (Table 1). The center of the standing figure is taken above the pubic bone in the female and at the pubic bone in the male figure (Perard 2003).

<table>
<thead>
<tr>
<th>Height/length</th>
<th>‘Head’ units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total height (standing erect)</td>
<td>7½</td>
</tr>
<tr>
<td>Head + trunk height (head to waist)</td>
<td>3</td>
</tr>
<tr>
<td>Neck + trunk height (neck to waist)</td>
<td>2</td>
</tr>
<tr>
<td>Waist to knees</td>
<td>2%</td>
</tr>
<tr>
<td>Waist to heel (floor)</td>
<td>4½</td>
</tr>
<tr>
<td>Hips to knees</td>
<td>2</td>
</tr>
<tr>
<td>Knee to heel (floor)</td>
<td>2</td>
</tr>
</tbody>
</table>

The length of the torso in the female is described as relatively longer than in the male and the legs as proportionately shorter (Chari 2005). The length of the thigh segment is taken as two ‘heads’ and that of the leg segment as one and a half ‘heads’ in the normal erect standing figure.

5. MEASUREMENTS

Definition of the ‘waist’ in the figure was important as estimation of height/length proportions depended on it. Precise delineation of the waist was difficult however, as Damayanti’s figure is clad in a rich drapery of sari. This difficulty was lessened by consideration of two factors:

First, an outline of the waist could be sketched over the figure by following the natural arc of the gluteal curve (prominence of the buttock) to the lower part of the trunk. In this connection, it is necessary to point out the exceptionally prominent and elongated gluteal curve in the painting. It is possible that the artist might have had in mind the ‘madisaara’ style of wearing the nine-yard sari popular among Brahmin and Maharashtrian women of his
times. In the madisaara style, several folded layers of pleat are gathered and tucked at the waistline at the back. This is likely to accentuate the gluteal prominence in profile. One is reminded of Deepanjana Pal’s statement here: “When he settled into Bombay, actresses from the Parsi theatre enchanted him as did Marathi women singers who tied their saris in a way that emphasized their voluptuous hips” (Pal 2009). The maestro is said to have painted Hamsa Damayanti while he was in Bombay.

Second, the richly embroidered lower border of Damayanti’s blouse allows a realistic assessment of the lower limit of the trunk and provides an approximate estimation of the waistline even if one accepts a widely exposed midriff. The waistline forms the lower limit of the trunk and the sari is normally secured there.

Delineation of waistline is important as it allows definition of the hip joint and therefore measurement of the thigh segment in the clothed figure. The waistline marks the crest or upper border of the pelvic (iliac) bone. The distance from waistline to the hip was taken as one half ‘head’ in the present calculations.

Figure 1A & 1B: Grid superimposed over tracings of the study print. In Figure 1A the horizontal lines denote from above down: Top of head, top of neck, waist level, level of hip, levels of knees (right & left) and the level of heel. The oblique line indicates the 31° downward tilt of the head. Figure 1B shows the lower limbs outlined in the figure.

Measurements in the study print against the expected standards are included in Table 2:

Table 2
Measurements in the study print and expected standards of body proportions

<table>
<thead>
<tr>
<th>Body part</th>
<th>(Head length 36.0 mm)</th>
<th>Standard Length</th>
<th>Standard ‘No. of heads’</th>
<th>Standard (expected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total height (in the figure standing erect)</td>
<td>277.0</td>
<td>270</td>
<td>7.69</td>
<td>7.5</td>
</tr>
<tr>
<td>Head + trunk height (head to waist)</td>
<td>82.0</td>
<td>108</td>
<td>2.27</td>
<td>3.0</td>
</tr>
<tr>
<td>(Corrected for head tilt of 31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck + trunk height (neck to waist)</td>
<td>61.0</td>
<td>72</td>
<td>1.69</td>
<td>2.0</td>
</tr>
<tr>
<td>Waist to knee</td>
<td>103.0</td>
<td>90</td>
<td>2.86</td>
<td>2.5</td>
</tr>
<tr>
<td>Waist to heel (floor)</td>
<td>195.0</td>
<td>162</td>
<td>5.41</td>
<td>4.5</td>
</tr>
<tr>
<td>Hip to heel (floor)</td>
<td>178.0</td>
<td>144</td>
<td>4.9</td>
<td>4.0</td>
</tr>
<tr>
<td>Hip to knee</td>
<td>85.0</td>
<td>72</td>
<td>2.36</td>
<td>2.0</td>
</tr>
<tr>
<td>Knee to heel (floor)</td>
<td>92.0</td>
<td>72</td>
<td>2.55</td>
<td>2.0</td>
</tr>
</tbody>
</table>

It is possible to see how the exceptionally elongated lower segment (hip to heel by 23.6%) in Damayanti’s figure contributes to the overall height in the presence of a 24.0% shortening of the trunk segment. The slightly bent left knee in the figure allowed fairly accurate delineation of Damayanti’s right knee. (The straight knee always remains at a lower level compared to its companion that is bent)

An attempt to complete the figure by sketching the lower limbs in the stenciled drawing highlighted the point mentioned above (Figure 1B). The excessive space available between the waist and the foot necessitated stretching the outlines of the thighs and legs disproportionately, resulting in an ‘uncomfortable fit’. The net result was a pair of unusually stout-looking lower limbs compared to the slender trunk segment above. Reducing the portliness of the limbs made them look too scrawny and elongated, reminding one of Alberto Giacometti’s figures.

6. DISCUSSION
Almost four hundred years before Ravi Varma painted Hamsa Damayanti, the Florentine artist and genius Leonardo Da Vinci presented the world with ‘Vitruvian Man’ an iconic representation of human body proportions (Richter 1980). The drawing shows superimposed nude male figures standing erect and with arms and legs outstretched to fit perfectly within the limits of a circle and square. Da Vinci apparently developed the concept from Marcus Vitruvius, a Roman architect and writer, who lived around 25 BCE. Although Vitruvius is said to have sought to integrate the cosmic and divine in man with the shape of the circle and the earthly with the square, Da Vinci’s creative urge soared beyond that. His was an exploration of the awesome symmetry and proportion in the design of the human body. He sought to comprehend this by no less a method than direct observation by the arduous practice of cadaver dissections and the study of geometry. His works represent one of the earliest attempts at documentation of anthropometric proportions in art. Da Vinci’s creations epitomize the confluence of art, science and mathematics; transcending them and elevating the arts of painting and sculpture from a solely aesthetic to a vast sphere of intellectual enterprise.

The other notable genius who raised renaissance art to unprecedented heights was Michelangelo Buonarroti, younger contemporary of Da Vinci in Florence. Michelangelo was also attracted to study the ‘divine perfection’ in...
the human form ‘which approaches God and becomes one with him.’ He too was devoted to the study of human anatomy. "There is no animal whose anatomy he did not desire to study much more than that of man;’ wrote Ascanio Condive, one of Michelangelo’s artist contemporaries and biographers (Leon 1975).

Over the centuries several European artists have appropriated Da Vinci’s scheme in Vitruvian Man. Albrecht Durer the German artist and William Blake British poet, printmaker, and mystic philosopher were perhaps the most notable among them.

Durer was a staunch believer in the descriptive science of anthropometry and its advocate in the art of painting. His drawings illustrate his allegiance to Da Vinci’s teachings and adherence to quantification and geometry in the Vitruvian canon. He was interested in stereometric studies of the human figure and in exploring the Pythagorean relationship of the real and the ideal through the language of geometry. "Now the sole reason why (the inept) painters of this sort are not aware of their own error’ wrote Durer, ‘is that they have not learnt Geometry, without which no one can either be or become an absolute artist…” (Neher A.)

William Blake’s interest in geometry as a trusty ally in visual arts and his life as an artist and poet followed a similar pattern. Blake appreciated and followed Durer and the German school as much as he valued the Florentine school of Raphael and Michelangelo. To Blake, a painting was a ‘colored drawing’ and he attached greater importance to ‘firm Determinate outline’ than for color. “It is the very same taste which relishes a demonstration in geometry, that is pleased with the resemblance of a picture to an original, and touched with the harmony of musick’ we read in ‘Reynold’s Discourses” (Frye N. 1953). He was not tired of pointing out repeatedly how imagination was more important than reason in representational art.

Several recent attempts have also been reported of creating images of ‘Vitruvian Woman’, drawing on Da Vinci’s human proportions and replacing the male with female figure in the middle of the circle/square. Artists have used painstaking ‘digital surgical techniques’ using computer graphics for this (Lightcracks 2006).

Unlike the renaissance painters and sculptors of Europe, artists in India are not known to have studied human anatomy in any great detail. Direct observation by cadaveric dissection (human or animal) was unthinkable in the eighteenth and nineteenth centuries and was totally unacceptable on religious, social, moral and aesthetic grounds.

If proportion and geometrical exactitude are truly admirable traits in driving opulence and meaning in representational art, there are numerous examples of these emanating from the inspired hands of Indian artists from ancient times. This is not surprising when one realizes that instructional resources like the Vishnudharmottara Purana (a supplement to Vishnu Purana), an elaborate compendium on the theory and techniques in arts have been in existence in India from around the 6th century CE. This was probably the world’s oldest and most comprehensive treatise on the arts of painting, sculpture and iconography. Chitrasutra, a part of Vishnudharmottara, dealt exclusively with painting, including oil painting (Rao S. (i)). Particularly relevant to the present study is the exhaustive, yet highly structured description of body proportions in Chitrasutra. The system of standards for representing body proportions was known as tala mana. One tala was the length measured from the tip of the middle finger to the crease on the wrist. Each tala was divided into twelve angulas equivalent to a finger-breadth. The distribution of proportions of the various body segments in the image or figure was considered more important than the actual measurements (Rao S. (ii)).

‘The face - length of the image i.e., from its chin up to the root of its hair on the forehead - would be 12 angulas or one tala. The length from throat to navel would be two tala; from navel to top of knee would be three tala; from the lower knee to ankle would be two tala making a total of eight tala. One tala is distributed equally between the heights of foot, knee, the neck and topknot. The nava tala thus will have a total of nine tala units, in height (108 angulas).’ (Rao S. (iii))

Chitrasutra divides the length of figures into five types: Hamsa, Bhadra, Malavaya, Ruchaka and Sasaki and recommends different dimensions for representing them in paintings and sculptures. The standard used is Hamsa in which the overall height of the image (or sculpture) will measure 9 talas or 108 angulas. Hamsa proportions are recommended for hallowed figures and deities. The other styles have lengths in a descending order: 106 angulas for Bhadra, 104 for Malavaya, 100 for Ruchaka and 90 for Sasaki. Rishis, gandharvas, ministers and family priests for example, are depicted in Bhadra style. The rules for female figures follow the same criteria for the five categories. Household women are to be represented in Malavaya style.

‘Tala’ length (from the tip of the chin to the commencement of hairline on the forehead) in the present study print was measured as 28.5 mm. This would make the angula unit for the figure 2.37 mm (28.5 divided by 12). If one to consider Damayanti in the Hamsa category, the overall height for the figure as directed by Chitrasutra would be 2.37 x 108 = 255.96 mm. But the measured height of 277.0 mm in the study print is obviously more than this (8.2%). Indeed, it may be noted that even if one were to follow modern recommendations, Damayanti still looks taller at 7.69 ‘heads’ compared to the standard 7.5 ‘heads’ (2.5%) She will look taller still if the 31’ head tilt is corrected.

At the risk of sounding frivolous and pun-loaded, it is suggested that Ravi Varma’s ‘Hamsa’ Damayanti has exceeded Chitrasutra’s most optimistic estimate of the ‘Hamsa’ archetype!
The concluding years of the nineteenth century and the beginning of the twentieth saw momentous changes in prevailing world views in physical sciences and art. Albert Einstein’s special theory of relativity and Hermann Minkowski’s description of four-dimensional space-time continuum along with the seemingly a-rational theory of quantum mechanics challenged existing commonsensical world views, concepts of scientific determinism and the very notion of rationality itself.

Just as physics was forced to search for newer methods for re-interpreting and recording the baffling operations of the universe, creative endeavors in art towards the end of the nineteenth century were also drawn into reconsidering notions of time and space and explore innovative methods and styles of symbolizing reality with stress on a move from perceptual to conceptual forms of visual imagery (Shlain 1991, Miller 2001). The drift from allegiance to the perspective in renaissance art and adherence to realism in impressionist art was initiated by Paul Cezanne and was quickly taken up by Picasso and Braque in developing their cubist style and others like Matisse and Dali in developing forms like fauvism and surrealism. Artists developed many ingenious methods of representing space, time and dimensionality that included deviation from perspective and recourse to geometrical abstraction. We see extreme examples of geometrical abstraction in the compositions of Wassily Kandinsky who emphasized the role of inner feelings and spiritual depth in artistic creativity (Kandinsky, 1914).

It would be far from realistic however, to attribute any post-impressionist notions of the avant-garde influencing Ravi Varma’s composition in the concluding year of the nineteenth century. Form, color and proportions were paramount in the tradition he was schooled in; and as far as we know, he followed them without fail in his creations. He was, we are told, exposed from a young age to the schemes and techniques of European artists who used to visit the state of Travancore. But these were mostly probing observations and close-range appraisals of their work rather than formal hands-on sessions or instruction on avant-garde trends. For example, when the Danish painter Theodore Jensen visited Thiruvananthapuram in 1868, Ravi Varma could watch “how the artist prepared his canvas, how the figures were placed in a grid, and how elements were added to populate the painting.” (Pal 2009) Perspective, symmetry, proportion and light with emphasis on color must have held sway in any art instruction of the time predominated by academic realism.

In La Grande Odalisque, the 1814 oil painting by the French painter Jean-Auguste Ingres, the anatomical inaccuracy of increased trunk length and pelvis has been explained as a combination of realism and symbolism. It has been suggested that the increased trunk length has effectively distanced the harem woman’s head (thoughts) from her pelvis, thus symbolizing her social role as a concubine (Maigne et al. 2004).

It may be pointed out that Damayanti’s figure in other compositions by Ravi Varma (‘Swan Messenger’ in Sri Jayachamarajendra Art Gallery in Mysore and the Oleographic Print from Ravi Varma Press) do not reveal any noticeable disproportion. It would therefore be unrealistic to ascribe any symbolic intention for the anatomical disparity in Hamsa Damayanti.

Why then, it may be asked, did the artist choose to leave an obvious disproportion in the figure of Hamsa Damayanti? Did he, as Ramanujacharya proposes, believe that Damayanti’s beauty lies in her ‘tall form’, in the suggestion of ‘a climbing creeper’? In a sense, it may be argued that the ‘tall form’ leaning against the pillar heightens the tenderness of the moment; the troubled sensibility of a disturbed soul distanced from its focus of desire seeking eager redressal in the message brought by the swan. But why the disproportion?

Or, taking the argument further, could it be postulated that the tall form and prominent gluteal curve have been used by the artist in an attempt to engage the viewer in what Ramachandran has described in neuroaesthetic language as ‘peak shift’ effect? (Ramachandran 2003).

Any motive on the other hand, based on a decision to move from traditional representation to abstract expressionism in which perspective and body relationships could be transgressed and where the figure could be painted without regard for symmetry and proportion is difficult to be endorsed in this case.

As the illustrious French sculptor Auguste Rodin pointed out, before erecting overly zealous impressions and opinions on the merits of oriental art, it is necessary for eyes used to Western yardsticks to summon up deeper and more refined levels of intuitive vision and understanding in order to appreciate “superior art” and gauge “the physicality of the soul imprisoned within” (Rodin 1921).

By the same token, from an Indian perspective, it would be appropriate to conclude with Sri Aurobindo’s reminder: “A great oriental work of art does not easily reveal its secret to one who comes to it solely in a mood of aesthetic curiosity or with a considering critical objective mind, still less as the cultivated and interested tourist passing among strange and foreign things; but it has to be seen in loneliness, in the solitude of one’s self, in moments when one is capable of long and deep meditation and as little weighted as possible with the conventions of material life.” (Sri Aurobindo (i))

And,

“The whole question of the Indian artistic treatment of the human figure has to be understood in the light of its aesthetic purpose. It works with a certain intention and ideal, a general norm and standard which permits of a good many variations and from which too there are appropriate departures.” (Sri Aurobindo (ii))
7. CONCLUSION

*Hamsa Damayanti* is one of the most celebrated works of Raja Ravi Varma, renowned artist of nineteenth century India. Copies of the painting adorn myriad living rooms in the country. Although casual viewing of the painting is unlikely to draw attention to any unusual feature in the composition, a closer scrutiny reveals an obvious bodily disproportion in Damayanti’s figure. While the ‘tall form’ of Damayanti is an unmistakable feature in the painting, what is even more striking is her shortened torso in relation to the disproportionately long lower limbs – the latter contributing to her overall height, even exceeding *Chitrasutra*’s ‘Hamsa’ archetype. It was possible to confirm these impressions by anthropometric measurements. The difficulty in ascribing any plausible motive for such a discrepancy has to be viewed in the light of Indian artistic practice of treatment of the human figure.

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RELATED RESOURCE

1. Raja Ravi Varma *Hamsa Damayanti*: Oil on canvas (print): Sri Chitra Arts Gallery, Thiruvananthapuram