



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## GARBHOPANIṢAD'S GUIDE TO MODERN EMBRYOLOGY

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आनोभद्राःऋतवोयन्तुविश्वतः ॥ ऋग्वेद१.८९.१ ॥

ā no bhadrāḥkratavoyantuviśvataḥ ॥ ṛgveda 1.89.1 ॥

Let noble thoughts come to us from any direction

The *sanātanavānmaya* - literature of our holy land of *Bhārat* encompasses a wide range of subjects from alphabets and their pronunciation to astronomy, stars, celestial bodies and their motion. It is unfathomable and undecipherable to demarcate its extent in terms of its vastness. Such extempore elucidation of each and every topic is found in our ancient literature leaving no stone unturned. A single term has been coined for this magnum opus and that is Veda. The literal translation of this word *Veda* is just knowledge. Knowledge pertaining to what? It cannot be limited to one particular thing. It is a consummated collection of all the knowledge a human brain can perceive and even much more beyond. The rsis who have compiled these *Vedas* are called *mantra draṣṭārah* - seers of the mantras. They have seen and visualised the mantras. They are not just random thoughts or expressions of their mind, but flashes of divine knowledge that have incarnated in their thought complex. It is silly to push them away or put them aside just because our tiny mind with various preconceptions and prejudices is not able to decipher them or understand them.

स्मृतिःप्रत्यक्षमृएतिहयम्अनुमानश्चतुष्टयम्

*smṛtiḥpratyakṣamaitihyamanumānaścatuṣṭayam*

says *TaittirīyaĀraṇyaka*. Indian logic - *Tarkaśāstra* propounds four *pramāṇās* or sources of valid knowledge - memory, direct perception, available literature and inference. It is very much essential to take into consideration the insights provided by our ancient texts and think better on those lines.

Upaniṣads are the final chapters or the quintessential aspects of Vedic literature. We cannot merely rely only on their literal meaning, but have to better understand the insights they provide and the philosophical perspectives they offer us. These Upaniṣads can be called as the summits of the Vedic knowledge as they speak about the highest of all knowledge - The Knowledge of Self.

*Garbhopaniṣad - A Brief Introduction*

*Garbhopaniṣad* - The Esoteric Doctrine over the Embryo is a text that exclusively comments on the integrated complex phenomena that are involved in the development of an embryo. It on a wider basis goes on expounding the basic elements involved in the formation of the human body, the prerequisites for organogenesis, congenital malformations, twin and multiple pregnancies and so on. It also extols a monologue by the embryo, thinking about all its past births which represents its philosophical perspective. It is listed number 17 in the canon of 108 Upanishads - the Muktika anthology. It is ascribed to Krishna Yajurveda by some and to PaippaladaŚaka of Atharva Veda by some.

यत्गर्भोपनिषद्वेद्यं गर्भस्य स्वात्मबोधकम्

*yatgarbhopaniṣadvedyamgarbhasyasvātmabodhakam*

This *Garbhopaniṣad* envisages the Self - Realisation of the foetus. It explains the thoughts running in a foetus with regard to its past lives, the paths tread by it and the various actions it has performed. It concludes with the message as of any upanishad - the ultimate goal of anyone is to attain moksha - self-realization and merger with the Divine Infinity or Almighty.

Similitudes of Modern and Ancient Embryology

*Garbhopaniṣad* starts with the description of the composition of the human body. The primum is about the five elements and how they are instilled into the body components.

पृथिव्यापस्तेजोवायुराकाशमित्यस्मिन्पंचात्मकेशरीरे

*prthivyāpastejavāyurākāśamityasminpañcātmakeśārīre*

Body is made up of five elements - prithivi (earth) apah (water) tejah (light) vāyuh (air) akāśah (sky/ether)

कापृथिवीकाआपःकिंतेजःकोवायुःकिमाकाशमित्यस्मिन्पंचात्मकेशरीरे

*kāprthivīkāāpahkiṁtejaḥko vāyuhkimākāśamityasminpañcātmakeśārīre*

What in this body is earth? What is water? What is light? What is air and What is the ethereal component?

यत्कठिनमसापृथिवी, यद्द्रवतदापो, यदुष्णतत्तेजो, यस्संचरतिसवायु, यत्सुषिरमत्तदाकाशमित्युच्यते

*yatkathinamsāprthivī, yaddravamtadāpo, yaduṣṇamtattejo, yassuṣiramttadākāśamityucyate*

The one that is tough is Earth, that which is liquid is Water, hot is Fire, and the one that permeates and circulates is Air. The openings are the Sky.

Next is an elaborate explanation of various terminologies such as *manaḥ, buddhi, citta, ahaṁkāra*, the six rasās, six *bhāvavikārāḥ* - exaggerations, the six chakras or the centres of endocrine function and many more.

The most important elaboration is of the chronological events involving the foetal development. It describes the various events from the fusion of शुक्ल (sperm) and शोणित (female energy), the happenings in every month at major junctures till the formation of a complete life.

शुक्लशोणितसंयोगादावर्ततेगर्भः

*śuklaśoṇitasamyogādāvartategarbhaḥ*

The embryo is formed by the union of male and female reproductive fluids.

एकरात्रोषितंकललंभवति

*eka rātroṣitamkalalaṁbhavati*

After one night, it forms a semi - fluid state

ससरात्रोषितंबुद्बुदंभवति

*saptarātroṣitam̄budbudam̄bhavati*

After seven nights from thereon, it takes the shape of bubble and is temporary

अर्धमासाभ्यन्तरेणपिण्डोभवति

*ardhamāsābhyantareṇapiṇḍobhavati*

At the end of a fortnight, it takes the shape of a solid lump

मासाभ्यन्तरेणकठिणोभवति

*māsābhyantareṇakaṭhiṇobhavati*

It gets solidified and hardened at the end of one month

मासद्वयेनशिरःकुरुते

*māsadvayenaśiraḥkurate*

In two months, the head takes form

मासत्रयेणपादप्रदेशोभवति

*māsatrāyeṇapādapradeśobhavati*

At the end of three months, the legs and foot are formed

अथचतुर्थेमासेगुल्फजठरकटिप्रदेशोभवति

*athacaturthemāsegulphajāṭharakṭipradeśobhavati*

By the fourth month, wrist, abdomen and hip, waist are formed

पंचमेमासेपृष्ठवंशोभवति

*pañcamemāsepr̄ṣṭhavaṁśobhavati*

During the fifth month, the spine and the adjoining bones get shaped

षष्ठेमासेमुखनासाक्षिश्रोत्राणिभवंति

*ṣaṣthemāsemukhanāsākṣi śrotrāṇi bhavaṁti*

The mouth, the nose, eyes and ears are all formed.

सप्तमेमासेजीवसंयुक्तोभवति

*saptamemāsejīvasamyuktobhavati*

In the seventh month, life - *prāṇa* enters the body shaped so far

अष्टमेमासेसर्वसंपूर्णोभवति

*aṣṭamemāsesarvasampūrṇobhavati*

By the eighth month, it attains full shape and gets fulfilled with all other remaining parts

This sequential elaboration of the events even corresponds to those as indoctrinated by modern embryology. A table eliciting this similarity has been added.

TIME	EVENT AS PER <i>Garbhopaniṣad</i>	MODERN EMBRYOLOGY
Fusion of sperm and ovum	<i>garbham</i>	Zygote formation
One Night	<i>kalalam</i>	Morula
One Week	<i>budbudam</i>	Bilaminar disc formation
Fortnight	<i>piṇḍam</i>	Formation of germ layers
One month	<i>kaṭhiṇam</i>	Face and limbs start developing
Two months	Head takes form	Facial features develop Limb buds are now arms and legs
Three months	Legs are formed	Fingers and toes are discernible
Four months	Wrist and hip joint are formed	Facial features are distinct
Five months	Spine is fully formed	Quickening felt
Six months	Complete formation of mouth, nose eyes and ears	Inner ear canals also developed Ears are fully functional
Seven months	<i>Prāṇaenters</i>	Foetus is viable hereafter
Eight months	Complete fully grown foetus	Well grown foetus - pre term
Nine Months	<i>mānasikacintana</i>	Fully grown foetus

What has to be appreciated is, in modern day science using sophisticated technology, imaging techniques and modalities we aren't yet able to decipher the complete embryological process. Aeons ago the sages of *bhārata* with their intuition could give such detailed descriptions of things which are not visible to a naked eye. Their scientific temperament has to be appreciated, the way of seeing things, classifying things and recording them, making the observations into a standardised pattern and all these have to be inculcated.

“History of Science without Philosophy of Science is blind and Philosophy of Science without History of Science is empty” said Norwood Russel Hanson, a great American philosopher of science. Historical and Contemporary comprehension are deeply interwoven. Our Indian ancient literature is a wonderful amalgamation of both philosophy and science. Every philosophical text has science in it and every scientific endeavour must have the philosophy of life laden in it.

At a few points, *Garbhopaniṣad* also contradicts modern thought.

पुष्पवतोरूपरक्तयोः अंगवैकल्यभाजः

*puṣpavatorūparaktayohamṅgavaikalyabhājah*

Eclipses play a major role in teratogenesis

This thought has been strongly disagreed and disproved by science aficionados. Another is also in the formation of twin pregnancies. *Garbhopaniṣad* says the cause of twins is the division of sperms, but modern embryology has more liking and evidence for the division of the ovum. Conjoined twins are due to divisions in both sperms and ovum as per *Garbhopaniṣad* which is not acceptable in today's parlance.

Few concepts of *Garbhopaniṣad* such as those explaining the sex of the child, the colour and complexion of the child, the interpretations given for the development of congenital anomalies, the behaviour of the child in later life are entirely obsolete and seem bizarre for the modern day scientists.

Aspects to be delved upon

Modern medical science has much thought about the psychiatric status of the mother during pregnancy. The psychologic and physiologic state of the mother plays a very important role in the neuropsychiatric development of the foetus.

But *Garbhopaniṣad* has a new dimension - the psyche of the foetus. It describes about the various thoughts that run in the mind of a foetus. An elaborate monologue presenting the thoughts of a foetus is expounded by *Garbhopaniṣad*. The foetus thinks of all the previous lives it has taken, the way it has spent all those lives and with what motto was those lives led.

नवमेमासेसर्वलक्षणसंपूर्णोभवति

*navamemāsesarvalakṣaṇasampūrṇobhavati*

पूर्वजातिस्मरतिकृताकृतकर्मविभाति

*pūrvajātiṣmaratikṛtākṛtaṁ karma vibhāti*

शुभाशुभकर्मविंदति

*śubhāśubhaṁ karma viṇdati*

नानायोनिसहस्रानिदृष्ट्वाचैवततोमया,

*nānāyonisahasrānidṛṣṭvācāivatatomayā,*

आहाराविविधाभुक्ताःपीताश्चविविधाःस्तनाः

*āhārāvividhābhuktāḥpītāścavividhāḥstanāḥ*

It also thinks about the various perils it has to undergo at each stage of life - childhood, youth and old age. It realises the reason for all the misery it faced and will face once after taking birth. It states the *prima causa* as ignorance and the six inner enemies - *ariṣaḍvargāḥ*. - *kāma*(desire), *krodha* (hatred), *lobha* (greed), *moha* (illusion), *mada*(egotism & pride) and *mātsarya* (jealousy).

It makes a staunch resolution of not to tread the same treacherous path of birth and death again and again. It aspires to seek guidance from a true *guru* for realising the *brahman* (Ultimate Truth) and to surrender oneself to the almighty.

संसारशृंखलंधिग्धिगाचार्यात्ज्ञानमाप्नुयाम्

*samsāraśṛṅkhalaṁdhigdhigācāryāṭjñānamāpnuyām*

यदियोन्यांप्रमुंचामिसांख्ययोगंसमाश्रये

*yadiyonyāṁpramuñcāmiśāṁkhyayogamsamāśraye*

अशुभक्षयकर्तारंपुरुषार्थप्रदायिनम्

*aśubhākṣayakartāraṁpuruṣārthapradāyinaṁ*

यदियोन्यांप्रमुंचामिप्रपद्येजगदीश्वरम्

*yadiyonyāṁpramuñcāmiṁprapadyejagadīśvaram*

But yet after all these staunch resolutions, the foetus again falls into the vicious cycle. Once it comes out of the womb, takes its first breath (*vaiṣṇavavāyu* - the air that sustains) it loses all its intra uterine thoughts. It trips from the path of Self Realization. It loses the *aparokṣajñānam*. Once it touches the earth, it acquires all the mundane features, acquainting itself to these earthly pleasures and worldly relations.

जातमात्रस्तुवैष्णवेनवायुनासंस्पृश्यते, तदानस्मरति  
*jātamātrastuvaiṣṇavenavāyunāsasṃspr̥śyate, tadānasmarati*  
 नैवकिंचनपारत्रिकं नापरोक्षदृग्भवति  
*naivakiṃcanapāratrikamṇāparokṣadr̥gbhavati*  
 भूमिसंस्पर्शनाज्जन्तुरुग्रदृक्पामरोभवेत्  
*bhūmisasṃsparśanājjan̄turugradr̥k̄pāmarobhavet*  
 जलसंस्पर्शनादूर्ध्वदृग्दोषस्तस्यनश्यति  
*alāsasṃsparśanādūrdhvadr̥gdoṣastasyanaśyati*

### Conclusion

This philosophical treatise of *Garbhopaniṣad* with all its scientific temperament extols why we should think about the reason for which we have come onto this Earth. *MaharṣiPippalāda* through this upaniṣad emphasizes us to develop the *bhāva* of *vairāgya* - detachment and give away these worldly ties. Those who are still lingering with these earthly pleasures with their intellect masked with ignorance shall forever suffer in this cycle of births and deaths.

अन्यथात्वज्ञस्यसंसारिणाहरहः क्रिमिवत्तन्मूत्रपुरीषयोः पानंयथानरकेतद्विहैवशरीरे, तदेतत्परिमाणम्परुजायनिर्विद्यादिति  
*anyathātvajñasyasāsarīṇaaharahaḥkrimivattanmūtrapurīṣayoḥpanānyathānaraketadvadihaivaśarīre, ta  
 detatparimāṇamparujñāyanirvidyāditi*

प्रतिष्ठोभूयाज्जंतुर्विवेकीमुच्यतेनपुनःशरीरंप्राप्नोति  
*pratiṣṭhobhūyājjan̄turvivekīmucyatenapunahśarīramprāpnoti*

पैप्पलादमोक्षशास्त्रंपरिसमाप्तमित्युपनिषत्  
*paippalādamokṣaśāstramparisamāptamityupaniṣat*

एवमादिषुशास्त्रेषुसंयक्दोषाःप्रपंचिताः  
 विमृशन्ननिशंतानिकथंदुःखेषुमज्जति  
*evamādiṣuśāstreṣusamyakdoṣāḥprapaṃcitāḥ  
 vimr̥śannaniśantānikathamduḥkheṣumajjati*

All these śāstrās are highlighting the fallacies of this worldly attachments.  
 Upon constant contemplation on the Truth where can be sorrow  
 -*VedāntaPañcadaśi*

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