# "An Analytical Study of 'Sanskrit' and 'Panini' as Foundation of Speech Communication in India and the World"

**Ratnesh Dwivedi, Sr Lecturer** 

Amity School of Communication, Amity University, India

E-Mail- rtnsh\_dwivedi@yahoo.com

Mob-+91 9958361401

## "Vagarthaviva Sampraktau, Vagartha Pratipattaye/

### Jagtah Pitrau Vande, Parvati Parmeshvarau//

-Kalidasa

### **1.0.Abstract:**

**Real Semskrtam** or for short **sanskrit** or **samskrtā vāk** is an ancient sacred language of bharatavarsha that is the language of Hinduism and the Vedas and is the classical literary language of India. The name Sanskrit means "**refined**", "**consecrated**" and "**sanctified**". It has always been regarded as the 'high' language and used mainly for religious and scientific discourse. There are still hundreds of millions of people who use Sanskrit in their daily lives, but despite these numbers, its cultural worth is unsurpassed.

The language name **samskrtam** is derived from the past participle samskrtah 'self-made, self-done' of the verb sam(s)kar- 'to make self', where sam- 'with, together, self' and (s)kar- 'do, make'. In modern usage, the verbal adjective samskrta- has come to mean "cultured". The language referred to as samskrtā vāk "the language of cultured" has by definition always been a "high" language, used for religious and learned discourse and contrasted with the languages spoken by the people. It is also called **deva-bhāṣā** meaning "Language of the Gods".

The Sanskrit language is the basis for many of modern Indian languages — Hindi, Gujarati, Marathi, Punjabi — as well as the classical Prakrit and the language of Buddhist scripture, Pali and has also helped shape many current languages including French, German, Russian, English and the South East Asian languages such as Malay, Javanese, Cambodia<sup>2</sup>, Vietnam, Thai and the Philippines. It shows many ancient forms of words such as father, through, shampoo, trigonometry, and mouse, while guru, pundit, dharma, bandh, and yoga are among hundreds of Sanskrit words that can now be found in the Oxford dictionary.

Sanskrit is a scientific and systematic language. Its grammar is perfect and has attracted scholars worldwide. Sanskrit has a perfect grammar which has been explained to us by the world's greatest grammarian Panini.

At that time, devanagari was the language of the whole civilized population of the earth. But due to lack of training and careless pronunciation, the uneducated people began to develop numerous dialects. Before, such lingual alienation had been carefully avoided since it was well-known that the material and spiritual power of the language greatly depends on its purity. Now, however, various dialects came up which, after gradually deviating from the original language, could not be called devanagari anymore. New languages, called **prakrta**, came forth.

Panini was a Sanskrit grammarian who gave a comprehensive and scientific theory of phonetics, phonology, and morphology. Sanskrit was the classical literary language of the Indian Hindus and Panini is considered the founder of the language and literature. It is interesting to note that the word "Sanskrit" means "complete" or "perfect" and it was thought of as the divine language, or language of the gods.

A treatise called Astadhyayi (or Astaka ) is Panini's major work. It consists of eight chapters, each subdivided into quarter chapters. In this work Panini distinguishes between the language of sacred texts and the usual language of communication. Panini gives formal production rules and definitions to describe Sanskrit grammar. Starting with about 1700 basic elements like nouns, verbs, vowels, consonants he put them into classes. The construction of sentences, compound nouns etc. is explained as ordered rules operating on underlying structures in a manner similar to modern theory. In many ways Panini's constructions are similar to the way that a mathematical function is defined today.

# 2.0.Keywords:

Sanskrit, Panini, Morphology, Grammer, Communication, Ashtadhyayi, Vedas

**3.0.Objective:** Sanskrit is the oldest language known to man. It is considered to be the very origin of language itself; that from which all languages have arisen or evolved. The Vedas, the universally accepted first scriptures of humanity, were written in the Sanskrit language.

The objective of research paper is to understand one of the oldest and finest languages in the world as a foundation to human speech communication. The study is based on basice objective of Sanskrit grammar and it's one of the foundation grammarian 'Panini' who gave us more than 3000 Sutras(formulas) of Sanskrit. The objective deals with analyzing the language through its oldest form and until as it is adopted now. The paper aims on analyzing the work and life of 'Panini' who gave organized foundation to the Sanskrit as a medium of speech communication.

# 4.0.Introduction and Description of 'Sanskrit':

**Samskrtam** or for short **sanskrit** or **samskrtā vāk** is an ancient sacred language of bharatavarsha that is the language of Hinduism and the Vedas and is the classical literary language of India. The name Sanskrit means "**refined**", "**consecrated**" and "**sanctified**". It has always been regarded as the 'high' language and used mainly for religious and scientific discourse. There are still hundreds of millions of people who use Sanskrit in their daily lives, but despite these numbers, its cultural worth is unsurpassed.

There is also a deeply rooted faith among Indians that Sanskrit itself is the language of the Devas (Gods), which is why this language was known during the Vedic period (6,000 - 8,000 years ago) as **Daivi Vak** (the Divine speech). The great grammarian, Pānini, structured this language with his grammar in the 7th century BC, and henceforth, it became referred to as Samskritam.

Numerous important works from a cultural, spiritual and scientific standpoint, were written in this ancient language. All of the classic literature of Vedic times was written in Sanskrit too, included the classical texts of yoga, Vedanta and other spiritual and philosophical schools of ancient times, as well as the historical texts in the great sciences of astrology, astronomy, medicine, architecture and the physical sciences.

The language is extremely regular, almost mathematical in its grammar and formulation. It is considered a sacred and mystical language — "**the language of the Gods.**" The

script is called Devanagari, meaning "**used in the cities of the Gods.**" Words are constructed from a number of roots, each considered to have an intrinsic quality that embodies the meaning itself, rather than being an arbitrary symbol. Sound is considered the subtlest of all five elements, and controlling sound can help manipulate matter, as through the chanting of mantras.

## 4.1.Etymology of 'Sanskrit':

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### 4.2.Establishment of 'Sanskrit' as One of the Finest Languages:

Being the oldest language in the world, for more than three millennia, Sanskrit was the lingua franca of the Indian subcontinent — the language of science, knowledge, spirituality and culture. Sanskrit is the common language of the Hindu Scriptures and it is the language of the Vedas, Upanishads, Bhagavad Gita, Mahabharata, Ramayana and the Puranas. Sanskrit literature is easily the richest literature in the history of mankind. The word Sanskrit literally means "Perfected Language" or "Language brought to formal perfection". This is quite an appropriate name since NASA declared it to be "the only unambiguous language on the planet". Recently well-known linguists and computer-scientists have expressed the opinion that Sanskrit is the best language for use with computers.



The Sanskrit language is the basis for many of modern Indian languages — Hindi, Gujarati, Marathi, Punjabi — as well as the classical Prakrit and the language of Buddhist scripture, Pali and has also helped shape many current languages including French, German, Russian, English and the South East Asian languages such as Malay, Javanese, Cambodia, Vietnam, Thai and the Philippines. It shows many ancient forms of words such as father, through, shampoo, trigonometry, and mouse, while guru, pundit, dharma, bandh, and yoga are among hundreds of Sanskrit words that can now be found in the Oxford dictionary.

Sanskrit is a scientific and systematic language. Its grammar is perfect and has attracted scholars worldwide. Sanskrit has a perfect grammar which has been explained to us by the world's greatest grammarian Panini.

# 4.3.Writing Pattern in 'Sanskrit' Language:

Sanskrit, like various other Indian and South East Asian languages, uses the Devanāgarī alphabet.

Devanagari is a phonetic alphabet that consists of 13 vowels (svara) and 34 consonants (vyanjana). It is known as a 'syllabic script' — every letter has a unique sound and is a single syllable of each word. The script is written from left to right and does not use any upper or lowercase letters. Most letters have a line across the top. When words are

written this line generally extends across the whole word. There are however, some cases where an individual letter may break the line.

### 4.4.History and Origin of 'Sanskrit' as Language of Communication:

The Vedic tradition informs us that human beings in former ages were physically and intellectually by far more able than nowadays. Knowledge was passed on by oral reception since the disciples were able to remember everything by hearing it once.<sup>3</sup> Thus, no writing was necessary. But at the dawn of the present age — the kali-yuga, or "age of quarrel" — human mankind degraded more and more and gradually lost all good qualities. The duration of life decreased, and with the loss of the keen remembrance the traditional system of acquiring knowledge ceased to be applicable. In order to prevent its decay, the Vedic wisdom had to be conserved in written form. This happened about 5000 years ago by the divine incarnation Shri Vyasadeva. He compiled the presently existing Vedic literature, namely the four Vedas, the Upanishads, the Puranas and the Mahabharata. Thus, he created no new knowledge but rather tried to preserve the original wisdom of human mankind for the oncoming generations.

At that time, devanagari was the language of the whole civilized population of the earth. But due to lack of training and careless pronunciation, the uneducated people began to develop numerous dialects. Before, such lingual alienation had been carefully avoided since it was well-known that the material and spiritual power of the language greatly depends on its purity. Now, however, various dialects came up which, after gradually deviating from the original language, could not be called devanagari anymore. New languages, called **prakrta**, came forth.

With the further progress of kali-yuga, these prakrta dialects spread more and more, up to the grade of dominating the original pure language. Finally, they were adopted even by the educated circles. The sages and scholars of that time became alarmed. Together with its language, they foresaw the dying-out of the root of Vedic culture. Thus, they invested enormous time and effort to design a standardized grammar, with the aim of preserving the devanagari language in its original purity. Although unnecessary before, this measure seemed to be the only means of counteracting the increasing cultural, intellectual and spiritual decay of the society. The most successful, hence most prominent amongst these grammarians was Panini. His grammar, surpassing all others in tightness and precision, became the standard and remained so undisputedly until today. Panini was able to joint the original devanagari language into an exact framework of rules, thus preserving it for the posterity. Since his time, this language is called Sanskrit, "joined together, refined".

According to the Vedic version, Sanskrit is not the result of the prakrta languages; rather, they in opposite have developed from the original Sanskrit language, called devanagari. The present-day Sanskrit is nothing more than the successful attempt to conserve the original language and to prevent its further alienation. And the development of scriptural record is not at all considered as a progress of human civilization — rather, it is a symptom of the increasing degradation of human qualities.

Following this tradition, Sanskrit is the original language of the Vedas. They were transmitted directly from the spiritual world at the dawn of creation. Therefore, their language bears the power to connect the reciter and the receptors of mantra and sloka with the eternal spiritual reality — especially if the mantras contain one of the numerous names of God. Consequently, Sanskrit produces a transcendental sound vibration which is able to liberate the living entity from the material existence called samsara, the circle of repeated births and deaths.

No more than now, as we are forced by an increasing number of archeological discoveries to date the age and origin of human mankind more and more backwards, this version appears to be absurd by no means. At least, no valid empiric reasons force us to dismiss it as mythological.

No matter, however, if we accept the academic opinion or the promotion of the Veda's own version — we have to regard Sanskrit as one of the great original cultural languages of this planet. It has influenced vast realms of our thinking and cognition and is still spoken by many scholars in and outside of India. Without knowledge of its Sanskrit culture, the present India and its traditions are not to be understood.

# 4.5. The Dominance of 'Sanskrit' Over Other Languages:

Until 1100 A.D., Sanskritwas without interruption the official language of the whole of India. The dominance of Sanskrit is indicated by a wealth of literature of widely diverse

genres including religious, philosophical, fiction (short stories, fables, novels, and plays); scientific (linguistics, mathematics, astronomy, and medicine), as well as law and politics.

From the time of the Muslim invasions onwards, Sanskritgradually became displaced by common languages patronized by the Muslim kings as a tactic to suppress Indian cultural and religious tradition and supplant it with their own beliefs. But they could not eliminate the literary and spiritual/ritual use of Sanskrit. Even today in India, there is a strong movement to return Sanskrit to the status of "the national language of India." Sanskrit, being a language derived from simple monosyllabic verbal roots through the addition of appropriate prefixes and suffixes according to precise grammatical laws, has an infinite capacity to grow, adapt, and expand according to the requirements of change in a rapidly evolving world.

Even in the last two centuries, due to the rapid advances in technology and science, a literature abundant with new and improvised vocabulary has come into existence. Although such additions are based on the grammatical principles of Sanskrit, and mostly composed of Sanskritroots, still contributions from Hindi and other national and international languages have been assimilated. For example, the word for television, duradarshanam, meaning "that which provides a 'vision' of what is far away" is derived purely from Sanskrit; whereas the word for motorcar, motaryanam, borrows from the English.

Furthermore, there are at least a dozen periodicals published in Sanskrit, all-India news broadcast in Sanskrit, television shows and feature movies produced in Sanskrit, one village of 3000 inhabitants who communicate through Sanskritalone (not to mention countless smaller intellectual communities throughout India), and schools where Sanskritis fostered. "Contemporary Sanskrit" is alive and well.

### 4.6. The Extraordinary Comments About 'Sanskrit':

The extraordinary thing about Sanskrit is that it offers direct accessibility to anyone to that elevated plane where the two — mathematics and music, brain and heart, analytical and intuitive, scientific and spiritual — become one.

Relevant to this, there has recently been an astounding discovery made at the NASA research center. The following quote is from an article Sanskrit & Artificial Intelligence, which appeared in **AI** (Artificial Intelligence) magazine in spring of 1985, written NASA researcher **Rick Briggs**:

"In the past twenty years, much time, effort, and money has been expended on designing an unambiguous representation of natural languages to make them accessible to computer processing. These efforts have centered around creating schemata designed to parallel logical relations with relations expressed by the syntax and semantics of natural languages, which are clearly cumbersome and ambiguous in their function as vehicles for the transmission of logical data. Understandably, there is a widespread belief that natural languages are unsuitable for the transmission of many ideas that artificial languages can render with great precision and mathematical rigor.

But this dichotomy, which has served as a premise underlying much work in the areas of liguistics and artificial intelligence, is a false one. There is at least one language, Sanskrit, which for the duration of almost 1000 years was a living spoken language with a considerable literature of its own. Besides works of literary value, there was a long philosophical and grammatical tradition that has continued to exist with undiminished vigor until the present century. Among the accomplishments of the grammarians can be reckoned a method for paraphrasing Sanskrit in a manner that is identical not only in essence but in form with current work in Artificial Intelligence. This article demonstrates that a natural language can serve as an artificial language also, and that much work in AI has been reinventing a wheel millennia old."

This discovery is of monumental significance. It is mind-boggling to consider that we have available to us a language which has been spoken for at least 5000 years that appears to be in every respect a perfect language designed for enlightened communication. But the most stunning aspect of the discovery is this: NASA, the most advanced research center in the world for cutting-edge technology, has discovered that Sanskrit, the world's oldest spiritual language, is the only unambiguous spoken language on the planet.

#### 4.7.Sanskrit - A Language of 'Mantra':

Words of power that are subtly attuned to the unseen harmonies of the matrix of creation, the world as yet unformed. **Vak** (speech), or the "word", incorporates both the sense of voice and word. It has four forms of expression. The first, **para**, represents cosmic ideation arising from absolute divine presence. The second, **pasyanti** (seeing), is vak as subject, seeing which creates the object of **madhyama-vak**, the third and subtle form of speech before it manifests as **vaikhari-vak**, the gross production of letters in spoken speech. This implies the possibility of having speech oriented to a direct living truth which transcends individual preoccupation with the limited information available through the senses. Spoken words as such are creative living things of power. They penetrate to the essence of what they describe, and give birth to meaning which reflects the profound interrelatedness of life.

The unique organization of the alphabet serves to focus one's attention on qualities and patterns of articulated sound in a way that occurs in no other language. By paying continuous attention to the point of location, degree of resonance, and effort of breath, one's awareness becomes more and more consumed by the direct experience of articulated sound. This in itself produces an unprecedented clarity of mind and revelry in the joy of language, as every combination of sound follows strict laws which essentially make possible an uninterrupted flow of the most perfect euphonic blending of letters into words and verse.

### 4.8.Limitation of Sanskrit in English Translations:

As Hinduism expands in the West, the emerging forms of this ancient tradition are naturally being reflected through the medium of Western languages, most prominent of which, is English. But the meanings of words are not easily moved from one language to the next. The more distant two languages are separated by geography, latitude and climate, etc. the more the meanings of words shift and ultimately the more the worldview shifts. The differences between the Indian regional languages and Sanskrit are minuscule when compared to the differences between a Western language such as English and Sanskrit.

With this problem in mind, the great difficultly in understanding Hinduism in the West, whether from the perspective of conversion or from a second generation of Hindus, is that it is all too easy to approach Hinduism with foreign concepts of religion in mind. It is natural to unknowingly approach Hinduism with Christian, Jewish and Islamic notions of God, soul, heaven, hell and sin in mind. We translate brahman as God, atman as soul, papa as sin, dharma as religion. But brahman is not the same as God; atman is not equivalent to the soul, papa is not sin and dharma is much more than mere religion. To obtain a true understanding of sacred writings, such as the Upanishads or the Bhagavad-Gita, one must read them on their own terms and not from the perspective of another religious tradition. Because the Hinduism now developing in the West is being reflected through the lens of Christianity, Judaism and Islam, the theological uniqueness of Hinduism is being compromised or completely lost.

Ideally, anyone attempting to understand Hinduism should have a working knowledge of Sanskrit. Ideally, all Hindu educational institutions and temples should teach Sanskrit, and all Hindu youth should learn Sanskrit.

## 4.9.Marvel of Sanskrit Language:

Indian literature includes everything which is included in the word 'literature' in its broadest, sense: religious and mundane, epic and lyric, dramatic and didactic poetry, narrative and scientific prose, as well as oral poetry and song. In the Vedas (3000 BC-1000 BC), when one finds such expressions, "I am standing in water but I am very thirsty", one marvels at the continuity of a rich heritage which is both modern and traditional. It is, therefore, not very correct to say that ancient Indian literature includes only the religious classics of Hinduism, Buddhism and Jainism. Jain narrative literature in the Prakrit language is full of erotic stories and realism.

Vedic poets are called the rishis, the seers who visualized the archetypal truths of cosmic functioning at all levels of existence. Devatas of the vedic poetry symbolise the manifestations of the divine force of the One Supreme. Vedas give importance to yajna (sacrifice). Purusa sukta of the Rigveda (10.90) describes the whole creation as a yajna extended by the divine forces of nature. Etymologically yajna means the worship of the divine, coordination and giving (sacrifice). These three elements together, vision, coordination and giving provide a basic paradigm for any creative act.

### **5.0.Research Methodology:**

**'Sanskrit'** is beyond the reach of researchers and so are the 'Rishis' who designed the language. A step ahead it is said that oldest written documents of civilization-The Vedas are not actually written by any human. They are derived from 'Brahma'-The creator of this universe. But the worshipers of this divine language had tried their best to

to explore the marvels of 'Sanskrit' and so am I.

I have tried my best to use my little understanding of the language at foundation level of my study, which helped me apply various methodologies to extract the study as foundation of speech communication. I am thankful to one of my teacher Shiva Pati Mishra, who taught me the basics of this language till 8<sup>th</sup> standard of my schooling, for what so ever knowledge I have of this 'Language of the Gods'.

The researcher have gone through various secondary tools while applying four research methodologies to extract the study. These methodologies are—Conceptual Research, Historical Research, Analytical Research and Descriptive Research. Apart from using secondary tools I have interacted with some noble brains of the language, who gave me an insight to understand the basic grammar on evolution and growth of this magnificent language as primary mode of communication in ancient India.

The Historical research methodology has been applied to understand the development of 'Sanskrit' in earlier period. A historical perspective has been given in beginning of paper on status of Sanskrit during Vedic era. The methodology has been used while narrating the truth of 'Panini's' existence and his life. The conceptual research methodology has been applied while dealing with 'Panini's' marvel book 'Ashtadhyayi'. It helped me to understand the basics structure of book, which is foundation in 'Sanskrit' grammar. Analytical research methodology has been used while analyzing the contents of 'Sanskrit' documents and 'Panini's' grammar. By using analytical research methodology ,researcher was able to understand and to make all of you understand about the brilliance of 'Sanskrit' and 'Panini's grammar as foundation of speech communication.

Researcher believe that 'Sanskrit' and 'Panini' both have played crucial role in organizing Human Speech Communication. By using above mentioned research methodologies researcher has reached more closer to this conclusion and these methodologies are the only source in their primary and secondary form to reach on this result.

### 6.0'Panini'- The Foundation Stone of Sanskrit Grammar:

Panini is known for his Sanskrit grammar, particularly for his formulation of the 3,959 rules of Sanskrit morphology, syntax and semantics in the grammar known as **Ashtadhyayi**, the foundational text of the grammatical branch of the Vedanga, the auxiliary scholarly disciplines of Vedic religion.

### 6.1. Role of Panini and the Ashtadhyayi as Foundation of Speech Communication:

The Ashtadhyayi is one of the earliest known grammars of Sanskrit, although Pāṇini refers to previous texts like the Unadisutra, Dhatupatha, and Ganapatha. It is the earliest known work on descriptive linguistics, and together with the work of his immediate predecessors (Nirukta, Nighantu, Pratishakyas) stands at the beginning of the history of linguistics itself. His theory of morphological analysis was more advanced than any

equivalent Western theory before the mid 20th centure, and his analysis of noun compounds still forms the basis of modern linguistic theories of compounding, which have borrowed Sanskrit terms such as bahuvrihi and dvandva.

Pāṇini's comprehensive and scientific theory of grammar is conventionally taken to mark the end of the period of Vedic Sanskrit, so by definition introducing Classical Sanskrit.

# 6.2. Role of Panini and the Ashtadhyayi as Foundation of Speech Communication:

Pāņini's grammar defines Classical Sanskrit, so Pāņini by definition lived at the end of the Vedic period. He notes a few special rules, marked chandasi ("in the hymns") to account for forms in the Vedic scriptures that had fallen out of use in the spoken language of his time. These indicate that Vedic Sanskrit was already archaic, but still a comprehensible dialect.

An important hint for the dating of Pāņini is the occurrence of the word yavanānī (in 4.1.49, either "Greek woman", or "Greek script"). Some Greeks, such as the Persian admiral Scylax of Caryanda were present in Gandhara as co-citizens of the Persian empire, well before the conquests of Alexander the Great in the 330s BC,; the name could also have been transmitted via Old Persian yauna, and the administrative languages Elamite or Aramaic, so that the occurrence of yavanānī taken in isolation allows for a terminus post quem as early as 519 BC, i.e. the time of Darius the Great's Behistun inscription that includes the Indian province of Gandara (Sanskrit Gandhāra).

It is not certain whether Pāṇini used writing for the composition of his work, though it is generally agreed that he knew of a form of writing, based on references to words such as "script" and "scribe" in his Ashtadhyayi. These must have referred to Aramaic or early Kharosthi writing. It is believed by some that a work of such complexity would have been difficult to compile without written notes, though others have argued that he might have composed it with the help of a group of students whose memories served him as 'notepads' (as is typical in Vedic learning). Writing first reappears in India in the form of the Brāhmī script from c. the 3rd century BC in the Ashokan inscriptions.

While Pāṇini's work is purely grammatical and lexicographic, cultural and geographical inferences can be drawn from the vocabulary he uses in examples, and from his references to fellow grammarians, which show he was a northwestern person. New deities referred to in his work include Vasudeva (4.3.98). The concept of dharma is attested in his example sentence (4.4.41) dharmam carati "he observes the law" (cf. Taittiriya Upanishad 1.11).

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The Ashtadhyayi is the central part of Pāņini's grammar, and by far the most complex. It is the earliest complete grammar of Classical Sanskrit, and in fact is of a brevity and completeness unmatched in any ancient grammar of any language. It takes material from the lexical lists (Dhatupatha, Ganapatha) as input and describes algorithms to be applied to them for the generation of well-formed words. It is highly systematised and technical. Inherent in its approach are the concepts of the phoneme, the morpheme and the root. His rules have a reputation for perfection — that is, they are claimed to describe Sanskrit morphology fully, without any redundancy. A consequence of his grammar's focus on brevity is its highly unintuitive structure, reminiscent of modern notations such as the "Backus–Naur Form". His sophisticated logical rules and technique have been widely influential in ancient and modern linguistics.

It is likely that Pānini's grammar and the Rg Veda are the only texts that were passed from one generation to another without being amended. In the Ashtadhyayi language is observed in a manner that has no parallel among Greek or Latin grammarians. Pānini's grammar marks the entry of the non-sacred into Indian thought, and according to Renou and Filliozat, it then defines the linguistic expression of that thought.

The great thinkers of ancient India were primarily linguists. It is not possible to understand fully the works of philosophers such as Shankara, Ramanuja and Madhva without a knowledge of Pāṇini. The Ashtadhyayi is fundamental to the structure of their thinking. It is not a didactic grammar, as it presupposes a knowledge of Sanskrit. Gradually, mainly after the X century CE, manuals were produced that reorganised the Ashtadhyayi for didactic purposes. These generally had simpler structures and were less ambitious than their Ashtadhyayi source.

Pāņini made use of a technical metalanguage consisting of a syntax, morphology and lexicon. This metalanguage is organised according to a series of meta-rules, some of which are explicitly stated while others can be deduced. The two fundamental principles on which the metalanguage is based are non-redundancy, or the principle of economy, and the necessity of all the rules in the Ashtadhyayi.

The Ashtadhyayi consists of 3,959 sutras (sūtrāņi) or rules, distributed among eight chapters, which are each subdivided into four sections or padas (pādāḥ).

From example words in the text, and from a few rules depending on the context of the discourse, additional information as to the geographical, cultural and historical context of Pāņini can be discerned.

## 6.3.Shiva Sutras:

The Shiva Sutras describe a phonemic notational system in the fourteen initial lines preceding the Ashtadhyayi. The notational system introduces different clusters of phonemes that serve special roles in the morphology of Sanskrit, and are referred to throughout the text. Each cluster, called a pratyāhara ends with a dummy sound called an anubandha (the so calledIT index), which acts as a symbolic referent for the list. Within the main text, these clusters, referred through the anubandhas, are related to various grammatical functions.

# 6.4.Dhatupatha:

The Dhatupatha is a lexicon of Sanskrit verbal roots subservient to the Ashtadhyayi. It is organized by the ten present classes of Sanskrit, i.e. the roots are grouped by the form of their stem in the present tense.

The ten present classes of Sanskrit are:

bhū-ādayaḥ (root-full grade thematic presents)
ad-ādayaḥ (root presents)
ju-ho-ti-ādayaḥ (reduplicated presents)
div-ādayaḥ (ya thematic presents)
su-ādayaḥ (nu presents)
tud-ādayaḥ (root-zero grade thematic presents)
tud-ādayaḥ (no presents)
tan-ādayaḥ (no presents)
krī-ādayaḥ (ni presents)
cur-ādayaḥ (aya presents, causatives)

Most of these classes are directly inherited from Proto-Indo-European. The small number of class 8 verbs are a secondary group derived from class 5 roots, and class 10 is a special case, in that any verb can form class 10 presents, then assuming causative meaning. The roots specifically listed as belonging to class 10 are those for which any other form has fallen out of use (causative deponents, so to speak).

# 6.5.Ganapatha:

The Ganapatha is a list of groups of primitive nominal stems used by the Ashtadhyayi.

# **Commentary:**

After Pānini, the MahābhāṢya ("great commentary") of Patañjali on the Ashtadhyayi is one of the three most famous works in Sanskrit grammar. It was with Patañjali that Indian linguistic science reached its definite form. The system thus established is extremely detailed as to shiksha (phonology, including accent) and vyakarana (morphology). Syntax is scarcely touched, but nirukta (etymology) is discussed, and these etymologies naturally lead to semantic explanations. People interpret his work to be a defense of Pāṇini, whose Sūtras are elaborated meaningfully. He also attacks Katyayana rather severely. But the main contributions of Patañjali lies in the treatment of the principles of grammar enunciated by him.

## 6.6.Panini and Bhattkavya:

The learning of Indian curriculum in late classical times had at its heart a system of grammatical study and linguistic analysis. The core text for this study was the Astādhyāyī of Pāṇini, the sine qua non of learning. This grammar of Pāṇini had been the object of intense study for the ten centuries prior to the composition of the Bhatțikāvya. It was plainly Bhatți's purpose to provide a study aid to Pāṇini's text by using the examples already provided in the existing grammatical commentaries in the context of the gripping and morally improving story of the Rāmāyaṇa. To the dry bones of this grammar Bhatți has given juicy flesh in his poem. The intention of the author was to teach this advanced science through a relatively easy and pleasant medium. In his own words:

This composition is like a lamp to those who perceive the meaning of words and like a hand mirror for a blind man to those without grammar. This poem, which is to be understood by means of a commentary, is a joy to those sufficiently learned: through my fondness for the scholar I have here slighted the dullard. Bhattikāvya 22.33–34.

The traditional story given to account for the technical or shastric nature of the poem goes that Bhatti's class on grammar was one day disturbed by an elephant ambling between him and his pupils. This bestial interruption necessitated an interdiction of study for a year as prescribed by the solemn law books. To ensure that no vital study time was lost our poem was composed as a means of teaching grammar without resorting to an actual grammatical text.

# 6.7. Panini and modern linguistics:

Pānini's work became known in 19th century Europe, where it influenced modern linguistics initially through Franz Bopp, who mainly looked at Pānini. Subsequently, a wider body of work influenced Sanskrit scholars such as Ferdinand de Saussure, Leonard Bloomfield, and Roman Jakobson. Frits Staal discussed the impact of Indian ideas on language in Europe. After outlining the various aspects of the contact, Staal notes that the idea of formal rules in language, proposed by de Ferdinand de Saussure in 1894 and developed by Noam Chomsky in 1957 has origins in the European exposure to the formal rules of Pāninian grammar. In particular, de Saussure, who lectured on Sanskrit for three decades, may have been influenced by Pānini and Bhartrihari; his idea of the unity of signifier-signified in the sign is somewhat similar to the notion of Sphota. More importantly, the very idea that formal rules can be applied to areas outside of logic or

mathematics, may itself have been catalyzed by Europe's contact with the work of Sanskrit grammarians.

## 6.8.Facts About Existence of 'Panini' and His Work :

**Panini** was born in Shalatula, a town near to Attock on the Indus river in present day Pakistan. The dates given for Panini are pure guesses. Experts give dates in the  $4^{th}$ ,  $5^{th}$ ,  $6^{th}$  and  $7^{th}$  century BC and there is also no agreement among historians about the extent of the work which he undertook. What is in little doubt is that, given the period in which he worked, he is one of the most innovative people in the whole development of knowledge. We will say a little more below about how historians have gone about trying to pinpoint the date when Panini lived.

It is believed that he and 'Katyayan' were two disciples of his guru. 'Katyayan' was very intelligent while on the other hand 'Panini' was dumb and often criticized by his guru and fellows. To overcome with this dumbness, he went to Himalaya and worshiped Lord Shiva. A please Lord Shiva made forteen sounds by his instrument 'Damroo' and Panini composed first grammar of Sanskrit by giving a sloka consisting fourteen words.

Aiunrilrik Aiyeyong Aiyvoch, Hayavarat, Lanyamgannam, Yamgannam//

## Khafchatath Chatatva Kapaya Shasar Hal//

Above sloka consisting fourteen consonants and vowels derived from fourteen sounds of Lord Shiva's Damroo became base of Sanskrit grammar founded by Panini.

Panini was a Sanskrit grammarian who gave a comprehensive and scientific theory of phonetics, phonology, and morphology. Sanskrit was the classical literary language of the Indian Hindus and Panini is considered the founder of the language and literature. It is interesting to note that the word "Sanskrit" means "complete" or "perfect" and it was thought of as the divine language, or language of the gods.

A treatise called Astadhyayi (or Astaka ) is Panini's major work. It consists of eight chapters, each subdivided into quarter chapters. In this work Panini distinguishes between the language of sacred texts and the usual language of communication. Panini gives formal production rules and definitions to describe Sanskrit grammar. Starting with about 1700 basic elements like nouns, verbs, vowels, consonants he put them into classes. The construction of sentences, compound nouns etc. is explained as ordered rules operating on underlying structures in a manner similar to modern theory. In many ways Panini's constructions are similar to the way that a mathematical function is defined today. Joseph writes in :-

Sanskrit's potential for scientific use was greatly enhanced as a result of the thorough systemisation of its grammar by Panini. ... On the basis of just under 4000 sutras [rules expressed as aphorisms], he built virtually the whole structure of the Sanskrit language, whose general 'shape' hardly changed for the next two thousand years. ... An indirect

consequence of Panini's efforts to increase the linguistic facility of Sanskrit soon became apparent in the character of scientific and mathematical literature. This may be brought out by comparing the grammar of Sanskrit with the geometry of Euclid - a particularly apposite comparison since, whereas mathematics grew out of philosophy in ancient Greece, it was ... partly an outcome of linguistic developments in India.

Joseph goes on to make a convincing argument for the algebraic nature of Indian mathematics arising as a consequence of the structure of the Sanskrit language. In particular he suggests that algebraic reasoning, the Indian way of representing numbers by words, and ultimately the development of modern number systems in India, are linked through the structure of language.

Panini should be thought of as the forerunner of the modern formal language theory used to specify computer languages. The Backus Normal Form was discovered independently by John Backus in 1959, but Panini's notation is equivalent in its power to that of Backus and has many similar properties. It is remarkable to think that concepts which are fundamental to today's theoretical computer science should have their origin with an Indian genius around 2500 years ago.

At the beginning of this article we mentioned that certain concepts had been attributed to Panini by certain historians which others dispute. One such theory was put forward by B Indraji in 1876. He claimed that the Brahmi numerals developed out of using letters or syllables as numerals. Then he put the finishing touches to the theory by suggesting that Panini in the eighth century BC (earlier than most historians place Panini) was the first to come up with the idea of using letters of the alphabet to represent numbers.

There are a number of pieces of evidence to support Indraji's theory that the Brahmi numerals developed from letters or syllables. However it is not totally convincing since, to quote one example, the symbols for 1, 2 and 3 clearly do not come from letters but from one, two and three lines respectively. Even if one accepts the link between the numerals and the letters, making Panini the originator of this idea would seem to have no more behind it than knowing that Panini was one of the most innovative geniuses that world has known so it is not unreasonable to believe that he might have made this step too.

There are other works which are closely associated with the Astadhyayi which some historians attribute to Panini, others attribute to authors before Panini, others attribute to authors after Panini. This is an area where there are many theories but few, if any, hard facts.

We also promised to return to a discussion of Panini's dates. There has been no lack of work on this topic so the fact that there are theories which span several hundreds of years is not the result of lack of effort, rather an indication of the difficulty of the topic. The usual way to date such texts would be to examine which authors are referred to and which authors refer to the work. One can use this technique and see who Panini mentions. There are ten scholars mentioned by Panini and we must assume from the context that these ten have all contributed to the study of Sanskrit grammar. This in itself, of course, indicates that Panini was not a solitary genius but, like Newton, had "stood on the shoulders of giants". Panini must have lived later than these ten but this is absolutely no help in providing dates since we have absolutely no knowledge of when any of these ten lived.

What other internal evidence is there to use? Well of course Panini uses many phrases to illustrate his grammar any these have been examined meticulously to see if anything is contained there to indicate a date. To give an example of what we mean: if we were to pick up a text which contained as an example "I take the train to work every day" we would know that it had to have been written after railways became common. Let us illustrate with two actual examples from the Astadhyayi which have been the subject of much study. The first is an attempt to see whether there is evidence of Greek influence. Would it be possible to find evidence which would mean that the text had to have been written after the conquests of Alexander the Great? There is a little evidence of Greek influence before the time of Alexander. Nothing conclusive has been identified.

Another angle is to examine a reference Panini makes to nuns. Some argue that these must be Buddhist nuns and therefore the work must have been written after Buddha. A nice argument but there is a counter argument which says that there were Jaina nuns before the time of Buddha and Panini's reference could equally well be to them. Again the evidence is inconclusive.

There are references by others to Panini. However it would appear that the Panini to whom most refer is a poet and although some argue that these are the same person, most historians agree that the linguist and the poet are two different people. Again this is inconclusive evidence.

Let us end with an evaluation of Panini's contribution by Cardona in :-

Panini's grammar has been evaluated from various points of view. After all these different evaluations, I think that the grammar merits asserting ... that it is one of the greatest monuments of human intelligence.

# 7.0.Literature Review:

When I jumped in to doing this study, I was not sure what kind of researches and studies has already been done to explore the 'Sanskrit' and specific studies on 'Panini'. But as I proceeded more closer I found that there are number of books written on 'Sanskrit' as one of the oldest language in the world. But my study was more focused on role of 'Sanskrit' as foundation of speech communication. And then I concluded that 'Panini' had played a very crucial role in developing the grammar of 'Sanskrit'. Two books which caught my attention were –'Panini by Saroja Bhate written in 1995. She went to the birth place of 'Panini' in 'Lahur' in Pakistan to explore the site. It is very fascinating book on a

small price which clarifies about 'Panini' and his book 'Ashtadhyayi'. The second book which I read was – 'Panini' A Survey of Research by George Cardona, which further signifies role of 'Panini' and his contribution in strengthening the grammar of 'Sanskrit'.

Apart from above two very sought after books I studied a third book 'The Wonder That Is Sanskrit—Interesting and Amazing Creations in Sanskrit'. The book deals with some shloka of Sanskrit which is referred as 'Adhamkavya' and is having amazing meaning. I have quoted this book in the ending of my paper.

Also I have gone through various 'websites' dedicated on 'Sanskrit' and have quoted them.

Since my primary objective was to establish a relation between 'Sanskrit', 'Panini' and their role as foundation of speech communication hence I have gone through number of other papers, journals and organization which work and publish content on 'Sanskrit'. I have done extensive search through verbal communication with noble brains on Sanskrit to carry out my survey and study.

Finally, I hope that my extensive search gave me result in establishing the relation between 'Sanskrit's' role as foundation of human communication in the world, and 'Panini' had played a remarkable role in designing the foundation of 'Sanskrit' Grammar.

# 8.0.The Mercurial Sanskrit-Amazing Creations in Sanskrit:

There is in Sanskrit, a whole body of literature that is based on a play with the language. This is not great literature or inspired poetry, but more in nature of linguistic acrobatics. These writings are often obtuse and not very easy to understand because they require a great mastery over all the complex grammatical structures. Therefore, they are known as 'Adhamakavyas', meaning poems of lower quality. However, for from being worthless, they demonstarte the amazing possibilities inherent in the language.

Several great poets, including Kalidasa, Bhartrihari, Magha and Shriharsha have made use of 'Adhamkavyas', sometimes in their major works. There are instances where entire epic have been written in this style. These epics are part of 'Alankarashashtra'. Here we will look briefly at a few examples to enjoy their flavor and to understand how magnificiently these masters have enriched the legacy of 'Sanskrit' to ensure its place as one of the foundation language of human speech communication.

# 8.1. Varnacitras:

The varnacitras are slkas written with certain constraints on the use of consonants.For example,here is a sloka where all the 33 consonants in Sanskrit come in their natural order.

Kah Khagaughang Chichchauja Jhangyo Tautheedaddhanah/

Tathaodadheen Paafarbabheermayo Rilvashishang Sahah//

Who is he, the lover of the birds, pure in intelligence, expert in the stealing the strength of others, leader among the destroyer of the enemies, the steadfast, the fearless, the one who filled the ocean? He is the King Maya, the repository of the blessings that can destroy the foes.

And here is sloka which uses only three consonants out of 33, Da, Va, and Na.

Devanam Nandano Devo, Nodno Ved Nindinaam/

Divam Dudava Naden Dane Danava Nandinah//

The God(Vishnu) who causes pleasure to other gods and pain to opponants of Vedas, filled the heaven with loud sound as he killed Hiranyakashyap.

This is a sloka which uses only two consonants, Bha and Ra.

Bhuribhir Bharibhir Bheerabhu Bharair Bhirebhire/

Bhereere Bhibhir Bhrabhair Bheerubhir Bhairibha//

The fearless elephant, who was like a burden to the earth because of its heavy weight, whose sound was like kettle-drum, and who was like a dark cloud, attacked the enemy elephant.

Most amazingly, entire sloka have been written using a single consonant-Na

Na Non Nunno Nunneno Naana Naana nana Nanu/

Nunno Anunno Nanu nneno Naanena Nunn Nunn Nut//

A man is not a man who is wounded by a low man. Similarly, he is also not a man who wounds a low man. The wounded one is not considered if his master is unwounded. And he who wounds a man who is already wounded, is not a man.

### 8.2. Sthanacitras and Svaracitras:

The stahnacitras are formed either by using the consonants of only one group or avoiding certain groups. This is the sloka using only gutturals.

Aga Gaangaang Kaakaak Gaahkaagh Kaakhaa/

Ahaahaank Khagangakag Kangak Gakhag Kaakak//

O you (the traveller of many countries), who baths in tortous current of rippling Ganga; you have no acquaintance with the sorrowful sound of the suffering world; you have the ability to go till the Meru mountain; you are not under the control of crooked senses. You, being the dispeller of sins, have come on this land.

In the Svaracitras the restrictions are on the use of vowels. This sloka uses only the vowel 'ee' in the first line and the vowel 'a' in the second line.

# Kshiti Sthiti Mitikshipti Vidhivinnidhi Siddhilit/

# Mam trayaksh Namdaksh Har Smarhar Smar//

O Lord Shiva, the psssesor of three eyes, the knower of existence, measurer and destroyer of the earth, enjoyer of the eight fold superhumanpower and nine treasures of Kubera, you killed Daksha and Kamdeva. O, Lord, do remember me.

Next is a sloka formed entirly with the vowel 'u'.

Urugum Dugurum Yutsu Chakru Shustushtuvuh Puru/

Lulubhuh Pupushur Mutsu Mumumur Hur nu Muhurmuhuh//

The gods took refuge in Brihaspati, the lord of speech, the perceptor of the gods

In heaven, when they went for battle. They prayed so that he would remain happy and strong, and not withdraw into unconsciousness, again and again.

# 8.3. Amita Compositions:

There are many other possibilities in the interplay of consonants, vowels and syllables or the words resulting from them. This sloka has an interesting sound effect through the use of 'Ka' and 'La'. This type of composition is called 'Amita', where the same letter are used frequently.

Bakul Kali Kaal Laamni, Kalkanthi Kal Kalakule Kaale/

Kalya Kalavatoapi Hi Kalyati Kalita Srtam Madanah//

Madana' the god of love, uses even the spots of the moon as his beautiful weapon at the time when ' Bakula' plant shines with new buds and when the cuckoos and women with melodious voices fill the air with their enchanting sounds.

# 8.4. Gaticitras:

The next category of chitrakavyas is the gaticitrs. These are variations of what are known as palindromes in English-words or sentences that remain the same even in their mirror images. For example 'noon' and 'eve' are examples of palindromic words. And 'able was I ere I saw Elba' is an example of palindromic sentence.

Here we have a verse in Sanskrit where each line is palindrome; that is, it does not change when read forward or backward. The sloka therefore has an axis of symmetry at the centre.

Vaarnaag Gabheera Saa Saaraabheeg Ganarava/

Kaaritaari Vadha Sena Naasedha Vari Taarikaa//

It is very difficult to face this army which is endowed with elephants as big as mountains. This is a very army and shouting of frightened people is heard, It has slain its enemies.

There re many examples of this variety. Here is an example from a poem where in each sloka the first line describes Rama and the second line Krishna. The striking feature is that the second line is always the reverse of the first line.

Tam Bhoosutamuktim Udaarhaasam Vande Yato Bhavya Bhavam Dayashreeh/

Shri Yadavam Bhavyabhatoya Devam Sanharda Muktim Sutasubhutam//

The first line addressed to Rama in prose order is.

Bhoosutamuktim Udaarhaasam Bhavya Bhavam Yato Dayashreeh Tam Vande//

I bow down before krishna, the descendant of Yadava family, who is the lord of sun as well as the moon, who liberated even her(Pootna) who wanted to bring and end to his life, and who is the soul of this entire universe.

# 8.5. Chitrabandhas:

In the chitrabandhas, when the sloka is written out, the letters form interesting geomatric pattern. In this example the alternate letters of the first and second 'padas' and of the third and fourth 'padas' are the same. The design is known as 'gomutrika' or the crisscross pattern formed by urine of moving cow.

Kaangakshan Pulom Tanayastan Peeditaani

Vakshah Sthalo Utthit Rayaanchan Peeditani/

Paayaad Paaya Bhayato Namuchi Prahari

Maayaam Pasya Bhavato Ambumucham Prasari//

May Indra, who uses thunderbolt as his weapon, who disperese the clouds in the sky, who desires to embrace and enjoy the pleasures of the bosoms of his consort Sachi, the daughter of demon Puloma—May that Indra, having removed all illusions, protect you from fear of all dangers and misfortunes.

#### 8.6. Samasya:

We now come to some other varieties of chitrkavyas. There is a variety known as samasya. Here the last line or the fourth quarter of sloka is given to a poet, but this line does not seem to make sense or appears to be absurd. The challenge for poet is to create the remaining three quarters in a matching meter, giving meaning to last quarter.

For example the last quarter given to a poet is 'Mrigat Sighah Palayate' meaning the lion runs away from deer. The verse created by poet was:

Tishth Arjunadya Sangrame Tvam Hanishyamyaham Sharaih/

Tishtahmi Karna Kim Mudham Mrigat Singhah Palayate//

Karan says; O Arjuna, stand(there); I will kill you in battle by my arrows.

Arjuna replies; Look I am satnding here. Does the lion run away from deer?

The next example is from Kalidasa. He was given as the last quarter just the sounds, thathan thathan than thatthathan thathan that. Kalidas came out with the sloka in 'Indravjra'meter, which describes a scene in the palace as Ayodhya was getting ready for the coronation of Rama. The verse is:

Ramabhisheke Madvivhlaya Hastachyuto Hemghtas Tarunyah/

Sopanm Saadya Karoti Shabdam thathan thathan thathan thathan tha//

During the coronation ceremony of Rama a golden pot fell on the staircase from the hands of young maidan, excited and happy. While rolling down the steps the golden pot made the sound Thathan thathan thathan thathan that.

### 8.7. Some Interesting Devotional Verses:

The devotional movement in India gave rise to different type of poetic expressions. Here we have two verses in praise of lord Shiva and Goddess Parvati:

Swayam Panchmukhah Putrau Gajanan Shdananu/

Digambarah Katham Jeeved Annpurna Na Chet Grihe//

He himself has five faces; of his two sons, Ganesha has an elephant face and Kartikeya is of six faces. How then would Lord Shiva live, if Annapurna(another name of Parvati as the giver of food) was not there in house?

Swayam Maheshah Shwashuro Nageshah, Sakha Dhaneshah Tanyo Ganeshah/

Tathapi Bhikshatanmev Shanbhoh Baleeyasee Kevalam Eeshwarechcha//

He is himself the lord of gods,his father-in-law,Himalaya, the lord of mountains,his friend Kubera is lord of wealth,his son Ganesha is the lord of 'ganas', and yet Lord Shiva Begs and lives on alms. Indeed,the will of the supreme is more mighty than allelse

## 9.0.Conclusion:

Here I come with this conclusion that Sanskrit is one of the world's oldest and richest languages. It was and it is foundation of human speech communication and a origin source to many other regional languages in India and foreign languages as well.

It has catered the need of human civilization to interact with each other in more grammatical pattern and in more organized form. 'Panini' and his creation of 'Ashtadhyayi' has strenthened the foundation of speech a grammar of Sanskrit.

Science and scientists has now also proved that Sanskrit is based on root sounds or vibrations of the Universe. As Quantum physics has now revealed to us, anything and everything consists of vibration. The primary essence of any object or phenomena, then, could be thought of as its own unique pattern, or composite patterns, of vibration.

It is said that the language of Sanskrit itself arises from these vary root sounds or vibrations of the Universe. The various vowels and consonants that make up Sanskrit words represent these core sounds, known as bijas. Whilst in states of deep resonance with the cosmos (in other words, while in meditation), the Rishis, the ancient spiritual scientists, could perceive these bija sounds; and from this profound sense of perception, they recognized the inherent sounds of each and every thing.

A Sanskrit word, then, is not merely a word chosen to name something, but an actual reflection of the inherent 'sound' of that object, concept or phenomena. In fact, proper, or

rather, perfect, pronunciation of Sanskrit words, it is told, can replicate the exact nature, or essence, of that which it is referring too.

It is also told that if one's mind was utterly pure, then upon hearing this perfectly pronounced symbol, the Sanskrit word, the image of that object, idea, etc., would immediately appear within the mind and the 'field of understanding' of this individual, even if they had never seen or heard of this thing or idea before. Likewise, the perfect pronunciation of a Sanskrit word has the power to manifest and/or influence that particular thing. Sanskrit, for this very reason, is referred to as the 'perfect language'.

This is, at heart, the essence of one of the principles behind mantra chanting in the vedic tradition. Today there are very few who possess this precise knowledge and ability of 'perfect enunciation', and fewer still who are pure enough of mind to be able to receive the innate truths of this language upon hearing it.

Finally, I would like to end my research paper with an interesting story related with one of the greatest poets of Sanskrit—Kalidasa:

On one occasion there was a serious discussion in the court of King Bhoja, whose courtpoet was Kalidasa.Kalidasa was absent that day and the thought came to Bhoja that what would be the verse that Kalidasa would compose if the king passes away suddenly. Bhoja was so taken up by the idea that he went with his minister to the residence of Kalidasa where he stayed hidden behind the door. The minister went in and very sorrowfully informed Kalidasa that king Bhoja had suddenly passes away. Kalidas was overcome by grief and sorrow burst forth in verse:

Adya Dhara Niradhara Niralamba Saraswai/

Panditah Khanditah Sarve Bhoraje Divangate//

Today Dhara(the kingdom of Bhoja), is without a support, even goddess Saraswati has no support, the poets, the scholars are all overcome with grief with the passing away of Bhoja. The king was so moved that he walked in. Everybody was taken aback and wondered what would Kalidasa do now. Kalidasa immediately came out with a new verse, echoing the first and yet with a completely new meaning.

Adya Dhara Sadadhara Sadalamba Saraswat/

Panditah Manditah Sarve Bhojraje Bhuamgate//

Today Dhara(the kingdom of Bhoja). Has gained its support, and also the goddess Sarswai. The poets and scholars are now all adorned with joy with the coming of king Bhoja on this earth.

# **10.0.Bibliography and References:**

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7.Article by: J J O'Connor and E F Robertson

8.http://www-history.mcs.st-andrews.ac.uk

9. "The Wonder That is Sanskrit" – Amazing and Interesting Creations in Sanskrit(p36p51).

10."Panini" by Saroja Bhate(1995)

11. "Panini- A Suvey of Research" by George Cardona.

# Footnotes:

1. Researchers at NASA have been looking at Sanskrit as a possible computer language because of its perfect morphology that leaves very little room for error.

2. Kambodia is veritably the English transliteration of the French name Kambodge implying for Sanskrit Kamboja.

3. Knowledge is very easily transferred through Sanskrit as the language is such that it allows memory to grow sharper — this was proven in ancient days when most of the learning used to happen verbally and none of the student used to forget that was taught, as the language allowed them to bring concepts and words to same space, not allowing much possibility of varied and modified presentations.

# **External Links:**

1.Free Devanagari fonts

2.Learn Sanskrit through self study — The Acharya Web Site disseminates information relating to computing with Indian languages.

3. Ancient Sanskrit Online

4.Sanskrit Academy

5. Cologne Digital Sanskrit Lexicon

6.Sanskrit Library — contains digitized Sanskrit texts and various tools to analyse them.

7.Samskrita Bharati — an organization established as an experiment in 1981 in Bangalore to bring Sanskrit back into daily life.

8. American Sanskrit Institute

9.Sanskrit Studies

10.Sanskrit Voice — a community of Sanskrit lovers.

11.Download free devanagari fonts & transliteration macros

12. The six unmatched features of the Sanskrit language