

ORIGIN OF THE PEOPLE OF INDIA AND THE VĒDIC CULTURE

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Table of Contents

PREFACE	4
DEPICTION OF SANSKRIT AND KANNADA WORDS	6
ORIGIN OF PEOPLES OF INDIA AND THE WORLD	9
THE THEORY OF ARYAN INVASION OF INDIA IS A FALLACY	30
ĀRYA.....	34
TIMING OF THE VĒDIC CIVILIZATION	38
CHANTING THE VĒDA	43
VĒDA ŚĀKHĀ	45
VYĀSA.....	47
SANSKRIT SCRIPT	53
BIBLIOGRAPHY.....	56

PREFACE

During the process of continued study and understanding of the available sacred Vēdic literature, re-evaluation and re-adjustment, as to the time period of composition of various Vēdic scriptures, had to be done. This is mainly because of the confusion caused by the now defunct theory of the 'Aryan Invasion of India'. In order to further understand this problem and obtain insight into the actual origin and culture of the ancient people of India, further study of available literature was carried out. The articles in this book reveal what could be ascertained on this subject.

As in the past, participation of my family members in this journey has enhanced my spiritual experience. My wife Uma Raju continued to review the articles and comment on them enthusiastically. Our daughter Bindu Raju, who has been extremely busy with her son Vikram Deshawn Raju and her work, was able to help me in this project. Our son Vinay Raju and our daughter-in-law Cecilia Chang Raju, who are also busy with their new baby Kyle Lohi Raju, have been supporting the endeavor with encouraging comments. More importantly, spending some time with our two grand sons has made me realize the importance of continuing my journey in this path of spirituality.

Scholar Guru Bale of Edison NJ, who is so busy in continuing to write and publish many of his books, has continued to support me in this project. My friend and Medical School class-mate Dr. Y. N. Jayaram of

Hainesport NJ, and his younger brother Professor Dathatri of Farmingdale NY, reviewed some of the articles and gave me very valuable input that kept me true to what I was writing. I am grateful to everyone who helped me in this endeavor.

Linga Raju

Please note that some minor changes and correction of typographical errors have been made to the original book manuscript.

DEPICTION OF SANSKRIT AND KANNAḌA WORDS

Most of the articles written in English, and published in this book, have many Saṁskṛta (Sanskrit) and Kannaḍa words that are written using the English alphabet. Transliteration of these words for proper pronunciation is a challenge with only about half the number of letters in the English alphabet. Furthermore, in general, the sounds of the English letters f, q, w, x and z, are not usable in both Sanskrit and Kannaḍa, leaving even a lesser number of English letters for the depiction. Each letter/syllable of the Sanskrit and Kannaḍa alphabets has only one pronunciation, and the alphabet is arranged according to the functional structure of the mouth to produce these sounds. The following is the English representation of the letters of the Kannaḍa alphabet (and the corresponding Dēvanāgarī script of Sanskrit) that is in common use nowadays. There are no capital letters; all the letters are in one case only. The lines, dots and other marks used here are called 'diacritics' or 'diacritical marks'. The diacritics are combined with English letters to represent new sounds. This representation is slightly modified from the scheme of transliteration given in ŚŪNYASAMPĀDANE Volumes I through V, published by Karnatak University, Dharwar, India (1).

Vowels: The vowels are either of a short or a long duration. The short vowels are held for one count, and

the long vowels are held for two counts. The complex vowels are held for two counts.

a, ā, i, ī, u, ū, ṛ, ṝ, e, ē, ai, o, ō, au

Anusvāra: **aṁ** (also **añ**) Visarga: **aḥ**

Consonants: Five sets of five each of the twenty-five consonants are arranged according to five points of articulation with the first vowel 'a' added for pronunciation.

Velars or gutturals - the sound is produced in the throat or back of the mouth:

Ka, kha, ga, gha, ṅa

Palatals – the sound is produced with the tongue touching the palate (roof of the mouth): **ḥa, ḥa, ja, jha, ña**

Retroflex or cerebrals – the sound is produced with the tongue bent backwards:

ṭa, ṭha, ḍa, ḍha, ṇa

Dentals – the sound is produced with the tongue touching the back of the upper teeth: **ta, tha, da, dha, na**

Labials – the sound is produced at the lips: **pa, pha, ba, bha, ma**

Semi-vowels: **ya, ra, la, va**

Palatal sibilant: **śa** Retroflex sibilant: **ṣa** Dental sibilant: **sa**
Aspirate: **ha** Lateral: **la**
Conjunct (combination of two letters): **kṣa. jña**

If the diacritical marks cannot be used for some reason, then there are a few accepted ways of representing some of the sounds/letters: aa for ā, ee for ī, oo for ū, and sha for the retroflex ṣa. In this version the palatal śa, as in Śiva, seems to have been written both ways – sa and sha.

It is not too difficult to use this type of representation in the articles. Although it takes more effort to properly depict the Saṃskṛta and Kannaḍa words, it is worthwhile to use the diacritical marks so that the words are sounded properly.

ORIGIN OF PEOPLES OF INDIA AND THE WORLD

'As soon as Puruṣa (human) was born, he spread eastward and westward over the Earth' says Ṛgvēda in maṇḍala X sūkta 90 ṛk 5 (2). That is what seems to have happened. All modern humans originated in Africa. There were no different parallel evolutionary origins anywhere else. All non-African people are the descendants of a group of modern humans who exited Africa around 85,000 years ago. All are part of one family. Most of what is written in this article is taken from the book 'OUT OF EDEN. The peopling of the world' by Stephen Oppenheimer, revised paperback edition published by Robinson, an imprint of Constable & Robinson Ltd. London. 2004. (3).

Research techniques used: Recent advances in deoxyribonucleic acid (DNA) analysis techniques have immensely improved our understanding of the biological history of modern humans. In addition there have been some advances in the Paleo-anthropologic studies of our ancestors, including the advances in comparative analysis of skull shapes using newer fast computers, and advances in dating techniques from carbon dating, with its limited capability of going back only up to 40,000 years, to uranium dating and the newer approaches of luminescence dating of silica. These advances not only have helped resolve some of the past 200,000 year family tree issues associated with DNA analysis, but also

have given enormous amount of information about our ancestors going back millions of years. Furthermore, the climate change studies have improved our understanding of repeated glacial cycles which have helped in determining when in time and where in place the human migration movements occurred.

Every cell in our body has DNA in two places. Most of the DNA is inside the nucleus of the cell. Only a very small portion of DNA is outside the nucleus in the mitochondria which are located in the cytoplasm of the cells. The **mitochondrial DNA** is inherited only from the mother. Although it is inherited by both daughters and sons, only the daughters can transmit it further to the next generation. Both ovum and sperm have mitochondria, but the sperm's mitochondria wither out upon entry into the ovum, and only the ovum's mitochondria are transmitted. The mitochondrial DNA is not corrupted by intermixing with other DNA during transmission from one generation to the next. During this generational transmission of the mitochondrial DNA, a random mutation called a DNA point mutation occurs every one thousand generations. Over the past 200,000 years, about seven to fifteen changes have been recorded on the mitochondrial DNA. The newly mutated mitochondrial DNA is then transmitted through all subsequent daughters of that mother. The random mutations that have occurred on different mitochondrial DNA of mothers in different locations have been passed down to respective daughters around the world. These different combinations of mutations in the present day living women around the world can be determined and used to reconstruct a female family tree that can be

traced backwards to the first mother about 200,000 years ago. This family tree can give information as to not only in which part of the world a particular mutation occurred but also when in time it occurred. All this information has helped trace the migration of modern humans around the world.

The nuclear DNA is inherited from both parents. During reproduction, the parents' nuclear DNA is copied and transmitted in equal portions. Although the nuclear DNA is segregated during reproduction, small bits of the DNA are shuffled and mixed at each generation. This is known as recombination. However, part of the Y-chromosome does not participate in this recombination process. The **non-recombining part of the Y-chromosome** gives uncorrupted information that is transmitted from generation to generation. Y-chromosome is the male chromosome that is transmitted from father to son only. The non-recombining Y-chromosome DNA is much larger in size than the tiny mitochondrial DNA. As such, it may have a greater power of time and geographic resolution than the mitochondrial DNA. The Y-chromosomal study has helped chart a male genetic trail similar to the female one of the mitochondrial DNA. However it somewhat underestimates the time periods. The DNA analysis is better at signaling ancient migrations than it is at dating the movements.

Abundant information has been obtained by the study of **stone tools**. The stone-tool technologies have been classified as Lower, Middle and Upper Paleolithic, Mesolithic, and Neolithic. Lower Paleolithic also called

Earlier/Early Stone Age started around 2.6 million years ago. The Middle Paleolithic also called Middle Stone Age was from about 300,000 to 50,000 years ago. The Upper Paleolithic also called The Later Stone Age is from about 50,000 to 10,000 years ago. The Mesolithic was from about 10,000 to 6,000 years ago. The Neolithic started around 7,000 Before Common Era (BCE). Transition from the Stone Age to the Age of the Metals occurred between 6,000 BCE and 2,500 BCE. The chronology of these stone ages is not absolute. As advances were made, the older technology was not necessarily discarded; rather, the progress was cumulative.

Understanding the **climate change** patterns has given greater insight into the effects of repeated glaciations on evolution and migration. Slow cyclical changes in the tilt of the Earth's spin axis and the shape of the Earth's oval orbit around the Sun alter the total amount of sunlight reaching Earth, affecting the timing and intensity of the seasons. Repeated and intense cold seasons cause glaciations. Historical climate change data and evidence of its effects have been obtained by drilling into icecaps such as in Greenland, drilling sea-beds particularly of the Arabian Sea and at various locations of the Indian Ocean, and digging the ground in various places. Most of the past two million years has been an extended cold and icy period, with only brief periods of warming. Extreme cold weather at times brings glaciations of ice ages. During the ice ages, large volumes of water are held in ice-sheets which may be as thick as a mile, the sea levels fall, there is less evaporation from the oceans, there is less rain, and the desert belts expand over large territories of land. Extreme glaciations, called glacial

maximum, are rare and short lived; they have occurred twice over the past 200,000 years. The brief episodes of warming are also rare and occur once every 100,000 years or so. Very warm period called interglacial optimum has occurred most recently about 8,000 years ago. During these warm periods, lush greenery expands, and grasslands and lakes grow into the deserts. A warm spell that lasts only a few thousand years, is called an interstadial rather than an interglacial. Another very well dated climatic catastrophe occurred 74,000 years ago. The volcanic eruption of **Toba** in Sumatra was the biggest eruption of the last two million years. A huge plume of ash spread north-west and covered a wide area, particularly India. It caused prolonged winter, and deposited an ash layer of 3 to 10 feet deep. These climate changes provide us with the longest timescale of the past, and the ice-age cycles have had a profound effect on the evolution and survival of all species on earth.

The beginning of humans: Ten million years ago Africa was a lush place with open forests and home to several ape species. Around 7 to 8 million years ago, a dramatic reduction in the number of ape species coincided with several million years of global cooling. About 6.5 million years ago there was a branching off in the evolutionary tree, separating the ancestors of humans from the ancestors of chimpanzees. *Australopithecus anamensis* skeletons dating from 4 million years ago, found on the shores of Lake Turkana in northern Kenya, were bipedal – walking ape ancestors of humans. Partial skeleton of the famous **Lucy** was discovered in 1974 at Hadar in Ethiopia. This Lucy

family, *Australopithecus afarensis*, is dated to be 3 to 4 million years old. Lucy was about 40 to 60 inches tall, upright and bipedal with a pelvis more similar to that of humans, but the skull and brain sizes were small like those of the chimpanzees. About 2.5 million years ago, there was another ice epoch, and soon after that, the first humans, the genus *Homo*, appeared in the African savannah. They had large brains and used stone tools. By one million years ago, the brain volume of various human species had increased to about three-quarters of their modern volume (400 – 1,000 Cubic Centimeter), and the humans had spread out outside Africa. The *Homo erectus* species dominated the earth for a million and a half years. Slightly smaller than the modern human, *Homo erectus* rapidly spread from Africa to the Middle East, India, Southeast Asia, Russia and the Far East, carrying the pebble tool technology. Another series of ice ages over a million years ago dried up Africa and brought about another specialized species of humans *Homo rhodesiensis*. They had the same size body as us, and a brain volume of as much as 1,250 cc. They used Lower Paleolithic tools, and they made it out of Africa to Europe. About 350,000 years ago, there was another severe ice age; subsequently about 300,000 years ago, archaic human species *Homo helmei* evolved. Their brain volume was actually larger than ours at about 1,400 cc. They had developed the Middle Paleolithic tool technology. During a warm period around 250,000 years ago, many of them had moved out of Africa and spread throughout Eurasia. *Homo helmei* gave rise to *Homo neanderthalensis* species. The Neanderthals also had a similarly larger brain than us and used Middle Paleolithic

tools. They were in Europe and Asia including India and China.

It seems that every time there is a drastic climate change, there is an evolutionary change, and a migratory movement. The increase in evolutionary brain volume in the ancestors of humans as compared to the ancestors of chimpanzees seems to correlate with quantitative differences in the increase in intellectual ability. The only qualitative difference between humans and the chimps is the human speech. Speech-driven co-evolution in brain size has been remarkable. Recent genome studies reveal that Humans and the late Neanderthals share the FOXP2 gene variant associated with speech and brain development, where as the Chimps have two amino acid differences in that gene (Wikipedia.org). Climate and geography dictate where to go and where to stay/live – while going, avoid deserts and high mountains and follow the rivers and the game; when staying, stay near water and vegetations and near reliable rainfall. In an entirely different context, the connection between all beings, the earth, water, vegetation and human speech, is mentioned in the Chāndōgya Upaniṣad, chapter I, verse 2 (4). It goes like this: *'The essence of all beings is the earth, essence of the earth is water, essence of water is vegetation, essence of vegetation is human, essence of human is speech, essence of speech is Ṛk (hymn of Ṛgvēda), essence of Ṛk is Sāman (hymn-song of Sāmavēda), essence of Sāman is Udgītha (up-beat song ṁ)*'.

Homo sapiens species evolved in Africa about 200,000 to 170,000 years ago. These modern humans were more

ingenious and became expert savannah hunter-gatherers. Severe glacial period from 170,000 to 130,000 years ago nearly wiped out the game that they were hunting. Starting about 140,000 years ago, to supplement game as a source of food, they had turned to **beachcombing** – browsing for food on the seashore, and gathering and eating shellfish and other marine products from the seashore. By about 130,000 years ago there were no other humans in Africa other than modern humans. There was a warm interglacial period around 125,000 years ago, and soon after that around 120,000 years ago some of the modern humans travelled out of sub-Saharan Africa into North Africa and then on to the Mediterranean Near East (present day Israel, Palestine, Jordan, Lebanon and Syria). But this first migration from Africa was extinguished by an ice age that followed after their exodus. Modern humans remained only in Africa until the next successful migration about 85,000 years ago. At this time, Eurasia was still inhabited by several other human species. Some of them persisted until about 30,000 years ago. Recent gene sequencing studies of the Neanderthal genome indicates that there was some breeding between the Neanderthals and the modern humans outside of Africa; non-African modern humans have 1 to 4% more in common with Neanderthal than do the genomes of Sub-Saharan Africans (Wikipedia.org).

The timing and route of migration out of Africa were determined by climate changes. Africa is physically connected to Eurasia only through the Sinai Peninsula in the north. Below the Sinai Peninsula, Africa is separated from Arabia by the Red Sea. Normally, and

particularly during the cold climate cycles, Sinai Peninsula is a dry desert connecting the Sahara and the Arabian deserts. However, during brief periods of warm and humid climates, this northern route is amenable for migratory movements and habitation. Because of the brevity of warm periods, it can turn into a deadly trap to migration and habitation. This is what happened to the unsuccessful first migration out of Africa by modern humans 120,000 years ago. After that, as the weather started getting colder, the sea levels started decreasing. There was a severe decrease in sea level 85,000 years ago, followed by a dramatic and brief improvement towards normal 83,000 years ago, and then there was an even more severe decrease to 340 feet below present sea level 65,000 years ago. Oceanographers measure the interglacial high sea levels by looking at coral reefs. However, it is more difficult to determine the low sea levels during glaciations; they obtain this information by measuring prehistoric levels of Red Sea plankton - When sea levels are very low, the Red Sea effectively becomes a salt lake with very little exchange from the Indian Ocean; evaporation of water increases the salinity and kills plankton which is the base of marine food chain; when sea levels improve, water exchange with Indian Ocean restores plankton in the Red Sea. The lower end of Red Sea called the Gate of Grief (Bal al Mandab) is very narrow – about 15 miles wide. As the sea level falls, this area becomes a narrow water channel broken up by reefs and islands so that humans can easily go across this southern route.

It appears that earlier humans crossed out of Africa via the northern route about three times before, the last

successful one being 250,000 years ago. Similarly, three other crossings of the pre-modern humans have taken place via the southern route, the last one about 160,000 years ago. These last southern route émigrés, the large-brained Asians (*Homo helmei*), were similar to the large-brained European Neanderthals. The full beachcombing route from the Red Sea was along the coast of Indian Ocean to India and Australia, and then extending along the Indo-Pacific coast to China and Japan. Evidence for the pre-modern migration has been well established. In the Narmada River valley in Central India, a skull of a large-brained archaic human, dated to over 150,000 years ago, has been found. India is much richer in the stone artifacts. Lower Paleolithic tools dating from 670,000 years down to 160,000 years ago, and the Middle Paleolithic tools of 160,000 years ago are abundant in India. The earliest evidence of deliberate patterning of stone that had some symbolic purpose – regular scratches, cross-hatching, and notching of pieces of stone or mineral pigment blocks – dating to 300,000 to 150,000 years ago have been found in the sandstone caves of India; they appeared in Africa much later around 100,000 years ago. Upper Paleolithic tools appeared in the central Indian Narmada and Middle Son Basins in northern India by 75,000 years ago.

The great exodus of 85,000 years ago of the modern humans from Africa took the southern route out of Africa, and then travelled along the shores of the Indian Ocean, beachcombing and colonizing India and Southeast Asia along the way, and arriving in Indonesia and also in New Guinea by 75,000 years ago. Because the sea levels were low, it was a dry walk all the way to

the tip of Java. During the next severe sea level depression 65,000 years ago the modern humans went across, island hopping, from Timor to the coast of Arnhem Land in northern Australia. As the sea levels have risen, much of the evidences of the beachcombing trek have submerged. Available archeological evidence comes from Malay Peninsula, New Guinea and Australia. Tools from the modern human culture embedded in Toba volcanic ash of 74,000 years ago have been found near Penang, Malaysia. Occupation of a rock shelter on the coast of Arnhem Land in northern Australia by modern humans is dated to around 60,000 years ago. Several methods of dating of the earth-material surrounding the skeleton of an anatomically modern human found at Lake Mungo in southeast Australia have confirmed it to be about 62,000 years old.

Genetic studies confirm that all modern humans evolved in Africa, that there was only one successful main exodus of modern humans from Africa about 85,000 years ago, and that all non-African modern humans descended from this movement. Genetic studies have been done on the present day people all over the world. There is a magnificent body of published genetic marker information on the Indian subcontinent. Mitochondrial DNA studies reveal that from the original African mother of all modern humans, there were about 13 or so available diversity of maternal lines or clans in Africa. It is possible that more than one line of mother clan exited Africa. But after several thousand years of living isolated in southern Asia, only one line survived and the others failed to reproduce. The original mix of genetic variations 'drifted' to become one genetic out-of-

Africa founder mother type; this is called the 'genetic drift'. This founding mother line is the **L3** line. There is no diversity in one line. Because the genetic drift is random, if two or more groups had exited Africa, especially at different time periods, they would not have drifted down to the same single L3 line. This L3 Asian mother line mutated and branched many times to populate the rest of the world. On the way, when the group size became larger, smaller groups broke off and ventured inland up the rivers. These smaller groups carried again a lesser diversity of mutated genetic lines which were further reduced by the genetic drift phenomenon as above, to other founder mother/mothers for those regions. After the initial out of Africa modern human dispersals, each region became settled, and there was no further inter-regional gene flow until the beginning of the last great ice age of 20,000 years ago. Both mitochondrial DNA and Y chromosomal DNA genetic marker systems show that there were clear regional and intercontinental divisions. By looking at the geographic distribution of subsequently mutated genetic lines, a precise genetic tree could be constructed that will not only show where the branching occurred, but also when in time those occurred.

The out of Africa Asian mother line **L3** gave rise to two daughter line mutations –**M** and **N** branches named by Oppenheimer as **Manju** and **Nasreen**. Both these mutations occurred around the same time. The Manju seems to have originated in **India** where as Nasreen branch seems to have originated somewhere west of India. As the genetic frequencies of these two lines including their subsequent daughter lines are traced

from west to east, there is a gradual transition across northern India. In the area of the present day Yemen the ratio of Nasreen to Manju is 5 to 1; this ratio gradually decreases to 1 to 1 east of the Indus River in India; further east in Bengal region of India the ratio reverses to 1 to 5 where Manju dominates. To the north and east of India, the ratio evens out again. But on the east coast of India, there is nearly all Manju line. This pattern is consistent with near local extinction as a consequence of the Toba explosion 74,000 years ago, with recovery of only Manju line on the east coast. Manju line attains greatest diversity in India with a high proportion of root and primary branch types. The oldest of the daughter branches **M2** dates to 73,000 years ago. The M2 line is strongly represented in the Chenchu hunter-gatherer tribal populations of Andhra Pradesh State with their own unique M2 variants. Nasreen's line is represented in India by her daughter line **R**, called **Rohani** by Oppenheimer. Rohani line is very prolific with many daughter lines. In India, Rohani has many daughter branches that have originated in India and are not shared by any other region. These branches have been dated to around 73,000 years ago. The Rohani expansion in India seems to have occurred during the recovery phase of the Toba disaster. A deeply branched diversity in the Rohani genetic line in India makes a case for Rohani's origin in India. Furthermore, there is no genetic evidence of Rohani originating anywhere else, thus supporting the above case.

Non-recombinant Y-chromosomal DNA studies give a picture similar to the one by the mitochondrial DNA studies. Of all the father lines present in Africa prior to

the exodus, only one exited line succeeded in giving rise to all non-African male lines. ***This out of Africa father line*** soon gave rise to three primary mutational son lines ***C*** (or RPS4Y), ***D/E*** (or YAP), and ***F*** (or M89), named as ***Cain***, ***Abel***, and ***Seth*** (biblical sons of Adam) respectively by Oppenheimer. Cain line, in addition to populating India, traveled rapidly along the coast of the Indian Ocean to become the first male founder in Eastern Indonesia, Australia and New Guinea and then continued beachcombing along the Indo-Pacific coast to Japan and Korea. Abel line split into two, right out of Africa; the western line populated parts of the Middle East and went back to Africa; the eastern branch, like Cain branch, followed the beachcombing coast to Indonesia but did not enter Australia. Seth line spread to every corner of the non-African world. The Cain male line is present throughout India at a rate of about 5%. The Abel line is in very small numbers in India. The Seth's lines account for about 95% of Indian male lines, and have deep splits in his branches in India. Cain's low rates and minimal presence of Abel lines in India could be explained by the devastating effect of the Toba explosion on India, and subsequent predominant recovery of Seth branches, similar to the one seen on the mitochondrial DNA maternal branches as stated above. Descendants of the Seth's line are the most numerous in the world, let alone outside Africa. Seth line had five genetic son branch lines of which ***K*** line, called ***Krishna*** by Oppenheimer, was the most prolific one. Another of Seth's genetic son lines, the ***J*** line, named ***Jahangir*** by Oppenheimer is also found in India. Krishna had five genetic son lines. One genetic son line of Krishna is ***P*** line, named ***Polo*** by Oppenheimer. Polo

had only two genetic son lines **Q** and **R**, named respectively as **Quetzalcoatl** and **Ruslan** by Oppenheimer. Ruslan is a large clan and its main line is **M173**. Polo's genetic son M173 Ruslan, and Ruslan's genetic son line **M17** arose in India, and spread out to Central Asia and then to Europe and East Asia. The ancestral-tree of M17 is as follows: **Out of Africa father – Seth – Krishna – Polo – Ruslan – and then M17**. Highest rates and greatest diversity of the M17 line are found in India including the present day Pakistan. M17 reaches a rate of 47% in Punjab with an overall rate in India of 27%. Furthermore, both high frequency and high diversity of M17 are found among tribal populations of South India including Chenchu and Yadhava tribal groups. This indicates that M17 is indigenous to these tribal groups in India. Origin of M17 in India is dated to be around 36,000 years ago. Since then, M17 found its way through Kashmir, Central Asia and Russia, and then into Europe. Its European age has been estimated to be 23,000 years ago. **All this refutes any theory that M17 is the male marker of 'male Aryan invasion' of India.** M17 went from India to Europe, and not the other way around.

Continuing on the beachcombing trail, mitochondrial DNA analysis of aboriginal groups of the Malay Peninsula has revealed that three-quarters of Semang group there have their own unique genetic Manju and Nasreen lines, and have no specific connection to any other Eurasian population. This indicates that after arriving long ago, they have remained isolated in the jungles of the Malay Peninsula. Least changed or root type Cain is found in the Eastern

Indonesian Islands of the Moluccas and Nusa Tenggara, which the first beachcombers had to island-hop to get to Australia. The only other place where this root Cain type is found is India. A brother group to the Australian Cain type C2 is found in the neighboring island of New Guinea. Cain line frequency shows that Cain type appears most commonly in the East Asia Pacific coastline and Southeast Asia. Australia has two main local ancestral Y types. Cain line is commonest at 60%, and the other is Seth's Indian genetic son Krishna at about 30%. Abel line is not found in Australia. Since their arrival 65,000 years ago, the Native Australians have evolved isolated from others. The 30% rate of Krishna persists throughout Southeast Asia and up the Pacific coast to Korea. These patterns suggest that the first beachcombing route not only went to New Guinea and Australia but continued up the Pacific coast to China, Japan and Korea.

East and Central Asia was populated by three genetic colonizations. The oldest settlers were the beachcombers who travelled up around the Indo-Pacific coast to Japan and Korea, leaving local colonies along the way. From these local coastal colonies, the second wave of migrants went up the great Asian rivers through gaps in the huge Himalayan Mountains. Southeast Tibet and Qinghai Plateau may have been the first parts of Central Asia to be inhabited this way around 60,000 years ago. The third group was from northern India going through the mountain passes west of the Himalayas, to Central Asia, particularly to the Asian part of Russia; this settlement occurring during mild period around 43,000 years ago. In addition, the first group of

beachcombers who had reached China might have gone up the Yellow River into Central Asia during the same mild period.

Europe was inhabited by Neanderthals way before any modern humans arrived there. The Neanderthals with their larger brain were as advanced as the modern humans at the time. As the modern humans expanded from Eastern Europe, the Neanderthals gradually retreated to present day Italy, then to southern France, and finally to Spain and Portugal. They co-existed after 35,000 years ago for about 7,000 years, and then the Neanderthals died out around 28,000 years ago.

There were two different waves of modern human migrations into Europe. The first wave consisted of a smaller group arriving around 46,000 years ago. They came from somewhere west of India. About 50,000 years ago, there was a period of warming lasting only a few thousand years, an interstadial, as detected by a carbon-rich layer in the undersea delta of the Indus River. Climate improvement opened up a narrow green corridor west of the Zagros Mountains in present day Iran, allowing migration from the west of India to the Mediterranean Near East. Low rates of the Nasreen root type and a great variety of the Nasreen's genetic daughter line Rohani are found only in South Asia. Most Rohani types in India are found no where else. The great diversity of Rohani type in India gives an estimated date of its expansion to be 55,000 years ago. Rohani's daughter line **U**, named **Europa** by Oppenheimer, is found in Mediterranean Near East. The fifth daughter branch **U5** colonized Europe mainly along

the Mediterranean coast. There were seven U line daughters. **U6** about the same age as U5 is not found in Europe. U6 moved west round the southern shore of the Mediterranean Sea into North Africa; U6 is a unique identifier of Berbers of Libya. Y-chromosomal DNA line Seth is even more specific as to the trek to Europe. One of Seth's genetic sons **J**, named **Jahangir** by Oppenheimer, has a South Asian origin. Jahangir is found at about 59% frequency in the southernmost part of the Zagros Mountains region. Mediterranean distribution of Jahangir mirrors the spread of U5 and U6 as above.

The second wave of invasion of Europe was a larger one, arriving there around 33,500 years ago and thereafter. Another daughter line of Rohani is the **HV** line. The roots of HV line are found in north-west India, and dated to be around 40,000 years ago. The two genetic daughter lines **H** and **V** are found throughout Europe today. H descendants are half of all western and northern European maternal lines, Slav, Finn and Germanic in particular. There is a considerably younger and a smaller back-migration from Europe to the Mediterranean Near East. Again the Y-chromosomal DNA is more specific with a good trail. The three male genetic lines of the second and larger invasion of Europe are all descendants of the Krishna line. Ruslan arising in India from the Polo line goes directly north through mountain passes to Central Asia where he splits east and west to East Asia and Europe. Ruslan is the progenitor of half of all Europe's men. Ruslan's genetic son line M17 comes to Europe later, and achieves the highest frequency of 60% in Hungarians with lower frequencies in all parts of

western and southern Europe and the Mediterranean Near East. The third Krishna line is called TAT. It originates in Central Asia from the line coming from Kashmir in India, and is mostly confined to the eastern fringe of Europe among Baltic Finns and Russians.

Last Glacial Maximum, as it is called, is the highest of the big freezes, and is not an ordinary ice age. It happened 20,000 years ago. Icecaps grew and occupied larger territories and some of them were three miles thick. The sea level decreased to an astonishing 400 feet below present level. The world's deserts expanded enormously. Huge areas of land became totally uninhabitable. Living and movement of human populations in the northern areas were disrupted. The ice-sheets were not evenly distributed. Central and northwestern regions of Europe were covered in ice as were the mountainous regions. But Eastern Europe and most of North and Central Asia remained ice-free. North America was severely affected. Two massive ice sheets covered Canada, Great Lakes and the northeastern United States. Alaska on the other hand was not covered with ice; it was connected to Siberia by dry land called Beringia. Low sea level also resulted in India joining up with Sri Lanka, Japan becoming connected to Asian mainland, Australia and New Guinea joining to form the continent of Sahul, and Indo-China, Malaysia and Islands of Indonesia merging with dry land to form a vast landmass called Sundaland.

As all this was still building up, between 25,000 and 22,000 years ago, because of worsening conditions in Asia, humans moved across over dry land Beringia, from

Asia to the **Americas**. From 25,000 to 11,000 years ago Bering Strait was a land bridge with grassy tundra supporting herbivorous animals. But from 22,000 to 15,000 years ago Beringia and Western Alaska were cutoff from both continents – Siberia in Asia was an arctic desert, and the two North American icecaps closed off the corridor south to the lower parts of the Americas.

Four American founder mitochondrial DNA lines have been identified and have been traced back to respective branches A, B, C and D in Asia, all descending from the original Manju and Nasreen lines. Subsequent reanalysis has added another founder clan X, to make a total of five American founder mother lines. These founder lines came to Beringia before the Last Glacial Maximum, and spread throughout the Americas before the corridor to the south closed off. Estimated average age of A to D lines is 23,000 years in North America, 16,000 in Central America and 21,000 in South America. When Beringia was cutoff from both the continents, it became a refuge holding the remnants of the original founder lines that dwindled down to a derived type A2 and nothing else. Where as in the rest of the Americas, all founding groups were widely distributed and were diverse. Americas are huge and there are marked differences in the relative frequencies of the five founder lines among the Native American People.

The male Y-chromosomal studies reveal that one line dominates all the Americas. Over 90% of all modern Native American male lines derive from the Polo line, one of the genetic son lines of Krishna. Although the Polo line accounts for 50% of the Europeans, most of

the European subtypes are not the same as those of the Americans. Of the two genetic son lines of Polo, Q (Quetzalcoatl) and R (Ruslan), the Q line dominates and is unique to the Native Americans. Q also has been dated to have come from Asia to America 22,000 years ago. In addition to the Polo line, another Krishna line TAT line is found rarely among the Americans. In addition to all the above original Seth male line, another Y chromosomal line is derived from Cain beachcombing line. All the above genetic findings suggest that the founder lines made multiple parallel entries from Northeastern Asia and the East coast of Asia, into the Americas before the Last Glacial Maximum.

All peoples of the world belong to one big family that originated in Africa. Adaptation, mutation and genetic drift have made us what we are today, and there is no superiority gene in any one or more groups of people among us. In a different context the chapter VI verse 29 of Bhagavd-Gītā (5) says *'a realized individual, the mind harmonized by yōga, sees one's own Self in all beings, sees all beings in one's own Self, and sees the same in all, and makes no distinction whatsoever'*.

THE THEORY OF ARYAN INVASION OF INDIA IS A FALLACY

The theory of Aryan invasion of India had been put forward in the nineteenth century Common Era (CE/AD) to explain the ancient history of India. According to this theory, around 1,500 Before Common Era (BCE/BC), India was invaded and conquered by nomadic light-skinned Indo-European tribes from central Asia (6). That meant that there was no trace of Aryan history or the Sanskrit language in India prior to this invasion. The theory argued that the Vēdic Aryans entered India from the northwest through the mountain passes of Afghanistan; they were barbaric semi-nomadic tribes who came in search of new grazing land for their cattle; they came down on horseback and chariots, armed with swords, bows and arrows, and other weapons, and were ruthless in conquering and subduing the native population. In that process, they supposedly destroyed the existing political, economic and religious order (7). This supposedly subdued native population was labeled 'Dravidian'.

This theory was invented by the European scholars in the nineteenth century when the British were ruling India. This theory was not only not based on any historical records, but also not founded on any archeological evidence. It was fashioned after more recent Indian history of outside invasions such as by Persians, Greek, Huns, Arabs, Turks, Portuguese, and

British, and based mainly on the linguistic speculation that similarities between Indo-European languages required an original homeland which could not possibly be India itself, but somewhere else (6). **The basic fallacy of the theory was the assumption that the ancient people of India could not have, on their own, come up with such a perfected Sanskrit language and the Vēdas.**

The Aryan invasion theory had been put forward before the archeological discoveries of the large urban ruins of the Indus valley culture at Harappa and Mohenjodaro, which showed a far advanced civilization in India dating from 3,100 BCE to 1,900 BCE. After the discovery, there was more speculation that the native people who had been labeled as 'Dravidians' might not have been the natives, but some other people who had come to India at some prior time and had established such an advanced civilization (6, 7). This again was based on the assumption that the ancient people of India could not have possibly established such an advanced civilization.

This Theory of Aryan Invasion of India is erroneous, and there is no evidence whatsoever of such an invasion. There is no literary or historical record of any such event until this theory of the 19th century CE. Neither the so-called conquering people, nor the so-called conquered people of India have any memory or record of such an immense event if it ever happened. To date there is no culture in ancient India that can be identified as that of the 'invading Aryans'. The so-called Vēdic Aryans were indigenous to India. The word Aryan comes from the Sanskrit word 'arya' meaning 'noble' or 'cultured'. The

ancients, who transmitted the sacred heritage of the Vēdas, described themselves as the 'aryas' (7). They could not have been the invading barbarians. Genetics, both in regard to human and animal (particularly cattle and horses) populations, is offering new evidence. Human populations in India show persistence of the same population groups with no evidence of an intrusion of populations that could alter the genetics of humans in India at the time of the so-called invasion (3, 6) (see 'Origin of Peoples of India and The World' article). Cattle genetics is even more detrimental to this theory of invasion as well as to any migration theory (6).

The R̥gvēda period had been well established during the period prior to 3,100 BCE (see 'Timing of The Vēdic Civilization' article). The so labeled 'Dravidians' were the original **Ārya** people of India. The people of south India are Āryas; they are not distinguishable separately as Aryans or Dravidians (page 127 of reference 8); they have been labeled as Dravidians. The Āryas of the south, who have been labeled as 'Dravidians', have been the best preservers of the Vēdic culture. The best Vēdic Sanskrit, rituals and traditions are found only in the South of India (page 44 of reference 6). The Āryas of the south have better preserved the Vēdas than the north.

The new model of ancient India is that of an indigenous development of civilization in ancient India from about 10,000 BCE to the present day. The people of this tradition are the same basic ethnic groups as in India today, with their same basic types of languages. It

makes the Vēdic India perhaps the oldest, longest and most central of the world's cultures (6).

ĀRYA

'Viśvedēvas (the Universal Gods) generated prayer, the cow, the horse, the earth, the waters and the hills; these very bounteous Gods made the Sun mount to the heaven, and spread the righteous laws of Ārya over the land' says Ṛgvēda in maṇḍala X sūkta 65 Ṛk 11 (2). The Sanskrit word Ārya means 'noble' or 'pure', and refers to a person with high mind and good spiritual values (9). Āryas were the original Vēdic people of ancient India. To them the ancient India was known as Āryāvarta, the abode of the Ārya. *'I (Indra) have bestowed the earth upon the Ārya, and rain upon the man who brings oblation'* says Ṛgvēda IV.26.2 (2). Homeland of the ancient Vēdic people was the Sarasvatī River region (see 'Timing of the Vēdic Civilization' article). The ancients resided there for a long time before the hymns of the Ṛgvēda were finalized (page 76 of reference 9). Subsequently the main homeland included the Gaṅga, Yamuna and the Sarasvatī River regions. In addition the greater Vēdic land included the surrounding vast areas – the northern region consisting of what is now the Punjab and the mountains of Kashmir, the western region of Gandhara extending into Afghanistan, the southern region by the Arabian Sea, and the eastern region marked by the Bay of Bengal including the lower Gaṅga and Sarayu (Ghaghara) River areas (page 95 of reference 9).

In the ancient times, the livelihood of the Āryas depended mainly on raising cattle (10). They constantly herded their cattle from one grazing ground to another.

In order to protect the cattle during harsh weather, the cattle were kept in secure shelters; a shelter for cattle is called gōtra in Sanskrit. As there were a relatively small number of these gōtras, many families shared the same gōtra in their area. To resolve any disputes among them, they appointed a supervisor called a Gōtrapati. The overseers were selected on the basis of their great moral and spiritual virtues; some of them attained the highest spiritually illumined status and were recognized as the great Ṛṣis (seers/sages). The groups of Ārya families used the Gōtrapati name to identify their 'Gōtra', and forbid marriage among the members of the same Gōtra to prevent any inbreeding (10). Nowadays this strict rule is sometimes not followed. Agriculture was gradually developed, and along with the animal husbandry, it became the main means of livelihood.

The term Ārya did not refer to any particular race, religion or language, but referred to a moral quality or mental disposition, that of nobility, uniting the like minded into a kinship (7). Ārya culture was based upon the rule of the seers of the Ṛgvēda. In this regard those who followed the spiritual culture of the seers were the Āryas. Those among the same people, who did not follow the spiritual rules, were not considered as Āryas. They were the fallen Āryas or non-āryas. Many of these non-āryas were reinstated as Āryas once they purified themselves and started following the spiritual Vēdic rules. Some who did not were kind of driven away. Ṛgvēda VII.6.3 states *'Who have no will, binders, whose speech is harmful, traffickers, who have no faith, who give no increase, who do not sacrifice, Agni attacked*

those, from the east he drove the unholy ones to the west'(page 261 of reference 9).

Āryas called their spiritual system 'Ārya Dharma' which means religious duties of the Āryas. Although the Sanskrit word Dharma has other meanings, here it means religion or religious duties (10). In relatively recent times, Buddha also used the same term 'Ārya Dharma' for his teachings of the laws of Āryas (9). Āryas also called their religion 'Mānava Dharma' which means 'Religion of Man'; it meant that it belonged to the whole of mankind (10). Another term they used was 'Sanātana Dharma' which means 'The Eternal Religion'; it implied that it was based on eternal truths (10).

Social life was permeated by the spiritual consciousness. Truth and righteousness were extolled. Civilization became well developed, and fine arts were encouraged (11). As kings and priests became powerful, the system of sacrifices evolved into higher degree of perfection (11).

As indicated above the Ārya homeland was mainly to the east of the Sindhu (Indus) River. The neighboring Persians, west of ancient India, apparently pronounced the word Sindhu as Hindu, and called the Āryas as the Hindus. Hence Ārya Dharma came to be known as Hinduism (10).

The Ārya peoples of India, including those of south India whose culture was also the Vēdic culture, place themselves in the lineage of the Vēdic seers. The descendents of their families are also considered as

descendents of these seers, and they identify themselves as such (9). The people of south India are Āryas; they are not distinguishable separately as Aryans or Dravidians (page 127 of reference 8); they have been labeled as Dravidians (see 'The Theory of Aryan Invasion of India is a Fallacy' article). The Āryas of the south who have been labeled as 'Dravidians' have been the best preservers of the Vēdic culture; the best Vēdic Sanskrit, rituals and traditions are found only in the South of India (page 44 of reference 6). The Āryas of the south trace their culture back to the great Ṛgvēdic Ṛṣi Agastya whose representation is found in all the temples of south India (9). The Āryas of the south have better preserved the Vēdas than the north. The Ṛgvēda is mostly in use in western India including Maharashtra and Karnāṭaka; Karnāṭaka people are the Ṛgvēda people; in Andhra Pradesh region, 98% of the people belong to Yajurvēda and only 2% to Ṛgvēda; in Tamil Nadu which included Kerala until about a thousand years ago, Sāmavēdis predominated in the past, but in later times only 15% are Sāmavēdis, about 5% are Ṛgvēdis, and Yajurvēdis predominate at about 80% (page 128 of reference 8).

The term Ārya did not refer to any particular race religion or language. But in the nineteenth century CE when the British were ruling India, the European scholars adapted the Anglicized word Aryan to refer to the Ārya people. They proposed a theory that these Aryans were not the original inhabitants of ancient India, but barbaric invaders of India. This theory has been disproved; there was no Aryan invasion of India (see 'The Theory of Aryan Invasion of India is a Fallacy' article).

TIMING OF THE VĒDIC CIVILIZATION

The Vēdas are the most sacred scriptures of the people of India, particularly the Hindus. It is said that the Vēdas are without a beginning because they contain the ever present divine revelations. Ṛgvēda is the most ancient of all compositions of the revelations. It was fashioned along with the ancient Sanskrit which was purely an oral literature in the past. Although it is extremely difficult to place the beginning of this Ṛgvēda period, it is generally considered by the Indian scholars to be around 10,000 Before Common Era (BCE) (11).

India has emerged as the oldest continuous civilization on earth. New biological evidence suggests that the Indian population has lived in the peninsula for at least 75,000 years (see 'Origin of Peoples of India and the World' article). In addition to the older archeological finds in Harappa and Mohenjo-Daro, and in Mehrgarh (all in present day Pakistan), significant new sites relating to Indian antiquity have been discovered – great city of Dholavina in Gujarat (one of the largest ports in the ancient world), Rakhigarhi west of Delhi (considerably larger city than Harappa and Mohenjo-Daro, and at least as old), and other ancient sites in the eastern part of India as far as Lucknow (7). Sites discovered along the Indus River, including the Harappa and Mohenjo-Daro sites, have been, in the past, referred collectively as pertaining to the 'Indus Civilization'. However, many more archeological sites than those have been discovered in the area where the ancient mighty Sarasvati River was. The satellite imagery has revealed that the Thar Desert in India, also called the

Great Indian Desert, was once traversed by this great river, flowing from the Tibetan Himalayas to the Arabian Sea (7).

The earliest Indic art dated to be as far back as 40,000 BCE is preserved on rocks, and dates from the Paleolithic to the Mesolithic and Neolithic periods. The rock sites are found distributed all over India. A continuity of the central theme between the rock art as above and the art of the Indus-Sarasvati civilization of 8,000 BCE to 1,900 BCE has been found. According to the archeological record, there is an unbroken tradition going back to 8,000 BCE. Ṛgvēda, a compilation of very ancient material, has astronomical references recalling events in the third to the fifth millennia BCE and earlier, indicating that the Ṛgvēda period had been well established during that period prior to 3,100 BCE (7).

The ancient Indic civilization reached its maturity by 2,700 BCE. It was the golden age of the Vēdas when the Vēdic religious practice was in vogue. The practice was based on all the Vēdas; composition of the main parts of the four Vēdas being completed by then with some of the appendages added at a later date. The Ṛgvēda speaks of, and praises the mighty river Sarasvati (She who flows) the largest of the seven rivers forming the life support of the Vēdic civilization. Originally the Sarasvati flowed through Rajasthan and poured itself into the Gulf of Kuch near Kathilawar Peninsula. One of the main tributaries was the Yamuna River which now flows into Ganga (Ganges) River. Sutledge River was also a tributary of Sarasvati; it now flows into the Sindhu (Indus) River. Around 1,900 BCE, over a comparatively

short period of time, major tectonic shifts occurred which drastically altered the flow of rivers and turned the Sarasvati region into inhospitable desert – the present day Thar Desert in India. Prior to the final demise, the Sarasvati River had shifted its course at least four times, gradually turning the region inhospitable. Some older Brāhmaṇas mention the Sarasvati River in them; this indicates that those were composed prior to the demise of the Sarasvati River. Śatapatha (Hundred Paths) Brāhmaṇa of the Śukla (white) Yajurvēda, the biggest of all the Brāhmaṇas, vividly describes the conquest of the swampy area east of the Gaṅga River, and does not mention the drying up of the Sarasvati River. This indicates that the eastward migration of the Vēdic people occurred over several hundred years prior to the catastrophe of 1,900 BCE and that the Satapatha Brāhmaṇa was composed during that time period (7). In general, the Brāhmaṇas and the Āraṇyakas originated around 2,700 BCE to 1,500 BCE.

Gaṅga River valley had been inhabited at least since 5,000 BCE. It was a thickly forested swampy area with heavy monsoon rains. Forest had to be cleared to make room for the new settlements. The center of vitality shifted from west to east, from the Sarasvati to the Gaṅga. Remembrance of the period of forest living in the Gaṅga River valley before this urbanization may be contained in the sacred Āraṇyakas (forest books) of the Vēdas. Exactly when the Upaniṣads were composed is not known; modern historians date some of the Upaniṣads to be from 7,000 to 5,000 BCE (11). In general the composition of the Upaniṣads of the Vēdas is said to belong to the second millennium BCE (7).

Following the close of the Upaniṣadic period further development of the doctrines about reincarnation, karma, and spiritual liberation resulted in the development of the six philosophical systems, namely, Nyāya, Vaiśeṣika, Sāṃkhya, Yōga, Pūrva Mīmāṃsā, and Uttara Mīmāṃsā or Vēdānta. This period ensued into the 'historical' times and eventually to the well established dates for Goutama the Buddha (563 BCE to 483 BCE), founder of Buddhism, and Mahāvira (540 BCE to 468 BCE) the founder of Jainism (7). It is unfortunate that the original Purāṇa which is mentioned in the early Vēdic literature is not available now. The Purāṇas composed in the post-Vēdic times have no reference to the Sarasvati River, but give praise to the Gaṅga.

The most extraordinary finding of Indian archeology is that there is no break in the series of cultural developments from the ancient times to the modern day India (7). The reference number 7, on page 152, states that, according to the American anthropologist James G. Shaffer, the early Indic Civilization evolved in four distinguishable phases. *The early food-producing era* from 6,500 BCE to 5,000 BCE which is characterized by the absence of pottery; *the reorganization era* from 5,000 BCE to 2,600 BCE which is marked by distinct regional styles of pottery and other artifacts; *the integration era* from 2,600 BCE to 1,900 BCE which shows a pronounced cultural homogeneity and the emergence of urban culture; *the localization era* from 1,900 BCE to 1,300 BCE which is characterized by a blending of patterns from the integration era with regional ceramic styles.

The so called 'Aryan Invasion Theory' has been described as a scholarly myth (6, 7). There was no 'Aryan Invasion of India'; it never took place. The Theory had implied that the invasion had occurred between 1,500 BCE and 1,200 BCE, and that there were no Vēdas and no Sanskrit language in ancient India prior to that invasion. The Vēdic civilization had been well established in India prior to 1,900 BCE. The so called Vēdic Aryans were indigenous to India, and they were called Aryas, not Aryans and not Dravidians. The word Aryan comes from the Sanskrit word 'ārya' meaning 'noble' or 'cultured'. The ancients, who transmitted the sacred heritage of the Vēdas, described themselves as the 'āryas' (7) (see 'The Theory of Aryan Invasion of India is a Fallacy' article).

CHANTING THE VĒDA

Vēda, in ancient Sanskrit which previously was purely an oral literature, has been faithfully passed down orally/verbally over thousands of years. The ability to preserve this comprehensive literature against the ravages of time is an incredible achievement (7). Vēdas consist of collection of hymns called mantras. A mantra is that upon which one meditates by chanting repeatedly, either silently or aloud, so that the vibrations created again and again result in one's own well-being and the general well-being of others (8). In order to preserve the purity of the Vēda mantras, in addition to verbally transmitting the Vēdic hymns, the methods of chanting and the rules of pronunciation had to be transmitted over generations. The Vēda mantras had to be chanted exactly, so as to produce the same perfect vibrations and sounds every time. Error-free chanting was of prime importance. It was believed that error-free chanting of the mantras, even chanting a single mantra correctly, was beneficial to the chanter whether the person understood the meaning of the mantra or not. Accordingly, in the early times, the ancient sages devised a unique chanting system that consisted of various chanting modes to help pronounce the mantras correctly. Each mantra, one at a time, had to be chanted in various patterns and combinations.

Although this system of chanting is so complex, the interested individuals were encouraged to learn more difficult methods of recitation, as the benefit of chanting more complex methods correctly, was said to be proportionately higher than that of the easier ones. It

appears that this complex system of chanting methods was helpful in preserving the Vēda mantras in a pure form. These lessons focused mainly on the error-free chanting, and not on understanding the meaning of the Vēda mantras. More important safeguards called Vēdāṅgas (limbs of the Vēdas) were devised by the ancient seers, not only for error-free chanting, but also to understand the wisdom of the Vēdas.

VĒDA ŚĀKHĀ

The Vēda, previously being a purely oral literature, had to be faithfully passed down orally/verbally over thousands of years. Vēda Vyāsa, who had compiled the existing Vēda into four separate Vēdas, had four chief disciples. Vyāsa taught the four Vēdas to his four chief disciples, and assigned one each of the Vēdas to them to be transmitted over the generations. Each one of Vyāsa's disciples had more disciples of their own. In course of time the number of successive disciples increased, and they formed separate groups or schools, giving rise to various branches called Śākhās. The Śākhā was named after the school to which it belonged. Each of these Śākhās had its own reduction or collection of the given Vēda for preserving in posterity. The Śākhās of a given Vēda differed only a little from each other.

A student of the Vēdas is expected to learn all aspects of the Vēdas. For an ordinary student, it is not usually possible to master all that is in the Vēdas. Thus, the Vēdas have been conveniently branched off into Śākhās. A Śākhā is a miniature Vēda with all its components. Each Śākhā consists of, first the Samhitā, next the Brāhmaṇa, and then the Āraṇyaka at the end of which appears the Upaniṣad. Each Śākhā, then, would be a unit that a student could master. From the ancient times, a total of 1,180 Śākhās were known to have existed: Ṛgvēda had 21 Śākhās; Yajurveda had a total of 109 with Kṛṣṇa Yajurveda 94 and Śukla Yajurveda 15 Śākhās; Sāmavēda had the most number with 1,000 Śākhās; and Atharvavēda had 50 Śākhās (8). Of the total of 1,180 Śākhās, only about eight complete and

parts of another 18 or so Śākhās are available (8). By another count 1,132 Śākhās existed, of which only 16 are available: five of 21 in Ṛgvēda, four of 85 in Kṛṣṇa Yajurvedā, two of 17 in Śukla Yajurvedā, three of 1,000 in Sāmavēda, and 2 of 9 in Atharvavēda (11).

Although so many Śākhās have been lost, the available parts of the Vēdas have been preserved in a pure form. This is because the ancients had devised, in the early times, a unique error-free chanting system that consisted of lessons of chanting modes (see the 'Chanting the Vēda' article). These lessons focused on the error-free chanting, and not on the understanding of the Vēdas. The ancients believed that proper chanting itself had some beneficial effects on the person chanting the mantras. Another more important set of safeguards called Vēdāṅgas (limbs of Vēdas) was devised not only for error-free chanting, but also to understand the wisdom of the Vēdas.

VYĀSA

Vyāsa means 'compiler'. Vēda Vyāsa means 'compiler of the Vēdas'. The term Vyāsa itself has come to be known only as Vēda Vyāsa. Both these terms are titles conferred on a person named Kṛṣṇa Dvaipāyana. Kṛṣṇa is a proper name and it means dark or black. Dvaipāyana means a person born on an island. Kṛṣṇa Dvaipāyana is said to have been born on an island in the Yamuna River. His mother was a fisherman's daughter named Satyavati, and his father was a Ṛṣi by name Parāśara. The term Pārāśarya refers to Kṛṣṇa Dvaipāyana as the son of Parāśara.

The ever present vibrations/sounds were perceived/heard by the ancient Ṛṣis, and were transmitted orally/verbally, over thousands of years, in the form of Vēda (meaning knowledge or wisdom) in the ancient language of Vēdic Sanskrit. In course of time a need arose to compile and record the Vēda. Kṛṣṇa Dvaipāyana, now revered as the **Vēda Vyāsa**, collected the Vēda and arranged it into four Vēda format. All the hymns used by the Hōṭṛ-priest to invite the various divinities to the sacrificial ceremony became the Ṛgvēda. All the liturgical parts of the Vēda, useful to the Adhvaryu-priest, the chief executor of the sacrificial rites, formed the Yajurvēda. Collection of all the musical chants, especially those associated with the Sōma group of sacrifices, and to be sung by the Udgāṭṛ-priest (the singer), was named the Sāmavēda. The rest, a sort of miscellaneous appendix and addenda, assigned to the Brahmā-priest who is considered as the supervisor over the whole sacrificial process, became the Atharvavēda

(11). Furthermore, Vyāsa taught the Vēdas to his four chief disciples, and assigned one each of the Vēdas to them to be transmitted over the generations. Paila was assigned Ṛgvēda, Vaiśampāyana the Yajurveda, Jaimini the Sāmavēda, and Samantu the Atharvavēda.

It is generally believed that Vyāsa compiled and classified the Vēdas more than 5,000 years ago (8). It is also believed that Vēda Vyāsa authored Mahābhārata which includes the well known Bhagavad-Gītā, the 18 Purāṇas, and the Brahma-sūtra. However there is considerable controversy not only about Vyāsa's time period, but also about the authorship of his works other than the compilation of the Vēdas. This controversy seems to be mainly due to confusion caused by now defunct theory of Aryan Invasion of India (see 'The Theory of Aryan Invasion of India is a Fallacy' article). This theory had implied that there was no Sanskrit or Vēdas in ancient India prior to the so called invasion which supposedly had occurred between 1,500 BCE and 1,200 BCE. Because of this false theory, everything had been dated since that false event. Once the theory was disproved, all these time periods had to be reevaluated and corrected.

Ṛgvēda period had been well established during the period prior to 3,100 BCE and the ancient Vēdic civilization reached its maturity by 2,700 BCE. Composition of the main parts of the Vēdas being completed by then with some of the appendages added at a later date. In general, the Brāhmaṇas and the Āraṇyakas originated around 2,700 BCE to 1,500 BCE. Some modern historians believe that some of the

Upaniṣads were composed between 7,000 and 5,000 BCE (11); but in general the composition of the Upaniṣads is said to belong to the second millennium BCE (7). The original Purāṇa which is mentioned in the early Vēdic literature is not available now. The post-Vēdic Purāṇas were composed following the close of the Upaniṣadic period (see 'Timing of the Vēdic Civilization' article). **Purāṇa** means 'history having the origin in the distant past', where as **Itihāsa** means 'verily, it happened thus' and means that it was composed as it happened. The two great epics, Mahābhārata and Rāmāyaṇa, are considered as Itihāsas, not Purāṇas. It is stated that some elements of the Mahābhārata can be traced back to the early Vēdic period.

Vēda Vyāsa is intimately connected with the story of the Mahābhārata itself. Vyāsa's mother Satyavati, later married the king of Hastinapura, which is located north-east of Delhi in the present day Uttar Pradesh State, and had two sons. But the sons died without having any children. Satyavati asked Vyāsa to bless the two wives of her dead son Viçitravīrya with children; this resulted in two sons (one each). Dhritarāstra was born blind; he is the father of the Kauravas (said to be 100 sons). Pāṇḍu was born pale and anemic; he is the father of the Pāṇḍavas (five sons). The Kurukṣētra war was between these cousins. Kurukṣētra land roughly corresponds to the present day Haryana State in India.

The core of the Mahābhārata is called '**Jaya**' which means victory. Jaya with its 8,800 verses is attributed to Vēda Vyāsa. **Bhārata** with 24,000 verses, containing the Jaya in its entirety, is said to have been recited by

Vaiśampāyana who was one of Vyāsa's chief disciples. **Mahābhārata** is more than 100,000 verses, and is the expanded version of Bhārata. It is said to have been recited by Ugrasrava Sauti, a professional story teller, to an assembly of Ṛṣis. Jaya is structured in the form of a dialog between Dhritarāstra and his advisor and chariot driver Sanjaya. Jaya deals with diverse subjects such as geography, history, warfare, religion and morality. Jaya includes the well known **Bhagavad-Gītā**. Bhagavad-Gītā is a dialog in a dialog. The inner dialog is between Kṛṣṇa and Arjuna on the battle field of Kurukṣetra. Divine Kṛṣṇa is said to be an incarnation of God Viṣṇu, and not to be confused with Vyāsa whose name is Kṛṣṇa Dvaipāyana. Arjuna is one of the Pāṇḍavas, and Kṛṣṇa was his chariot driver. Thus, technically speaking, Vyāsa authored 'Jaya' including the 'Bhagavad-Gītā', and not Mahābhārata.

The traditionalists believe that the story of Mahābhārata took place in the Dvāpara Yuga, just before the beginning of the Kali Yuga which is said to have started after the disappearance of Kṛṣṇa the Divine and submersion of Dvārakā Island in the Arabian Sea in 3,102 BCE. Another calculation based on the same astronomical references in the passage itself, gives the date for the Bhārata to be 2,449 BCE, 653 years after the start of the Kali Yuga. Archeological findings from the excavations at the Dvārakā site which was a port city in Gujarat state in India, have revealed structures similar in style to the traditional city of the Divine Kṛṣṇa that has been described in Mahābhārata, and it has been dated to about 1,500 BCE (7). Vyāsa was a contemporary of Divine Kṛṣṇa, therefore it could be

construed that Vyāsa lived around that date of 1,500 BCE. Some other archeological findings of the so called 'Painted Grey Ware Culture' have been dated to be between 1,100 BCE and 700 BCE, and one estimate, using this archeological evidence, gives the date for the Kurukṣētra war to be 836 BCE. However, the reference number 9 on pages 364-365 states that as reported in MLBD Newsletter, Delhi, India, Motilal Banarsidass, January 1988, the marine archeologists from the National Institute of Oceanography (India) have discovered a 'port wall' off the Bet-Dvārakā island in the Gulf of Kutch on December 11, 1987; this 250 meter long wall belonged to the now submerged city of Dvārakā; the wall is made of seven sources of specially designed prism shaped stones; numerous artifacts such as seals and pottery have been found and that the pottery found near the wall and elsewhere on the island have been confirmed by thermo-luminescent dating to be about 3,500 years old.

It is stated that Vyāsa's father Parāśara wrote the original text of Viṣṇu Purāṇa, and Vyāsa authored the rest, and edited and presented all the 18 Purāṇas (8). Furthermore, it is said that Vyāsa's son Śuka was the narrator of Vyāsa's major Purāṇa called Śrīmad Bhāgavata. There is some controversy about the authorship of the Purāṇas.

Most of the controversy is on the authorship of **Brahma Sūtra**. Sūtras are the main parts of the doctrines of the Hindu Philosophical Systems. Sūtra is an aphorism with minimal use of words to project a thought (8). Brahma Sūtra systematizes the thought of the Upaniṣads, which

are the later parts of the Vēdas; therefore, it forms part of the Uttara Mīmāṃsā Philosophy. Brahma Sūtra is the book of reference in all matters pertaining to the Vēdāntic doctrines. It was composed by the sage **Bādarāyaṇa**. Bādarāyaṇa lived under a Badari tree at the Badari Āśrama in the Himalayas. Traditionalists identify Bādarāyaṇa with Vyāsa, and believe that the two are one and the same. Śaṅkara of the Advaita Vēdāntic School of Philosophy identifies the two separately where as Rāmānuja of the Viśiṣṭādvaitism implies that they are one and the same. It is stated that in Bhagavad-Gītā there is a reference to Brahma Sūtra, and that there are references in the Sūtra of the Gītā; and that those cross references may mean that the author of the Gītā had a hand in the present recension of the Sūtra (12). The confusion might have been because that some form of Vēdānta-sūtras must have existed before Buddha and that Vēda Vyāsa must have had a hand in the present recensions of the Sūtra (12). Many modern historians think that Bādarāyaṇa and Vēda Vyāsa were two different persons. The controversy continues.

SANSKRIT SCRIPT

Script is a written form of language. Ṛgvēda, the most ancient of all compositions, was fashioned along with the old Vēdic Sanskrit language which was purely an oral literature then. Beginning of this period is generally considered to be around 10,000 BCE (11). The Vēdic seers have stated that 'Saṁskṛtaṁ is the name of a scientifically standardized language evolved by the seers out of the primitive articulate speech by subjecting it to grammatical analysis' (page XV of reference 13). In this regard references in the Vēdas themselves are given: Ṛgvēda I.164.50 and X.90.16, Kṛṣṇa Yajurveda III.5.11, Śukla Yajurveda 31.16, and Atharvaveda VII.5.1 say 'the scholars (here it says dēvas) carried out the operation/yajña (said to mean composition of hymns); these were their first duties/dharma.

The Vēdas in ancient Sanskrit/Saṁskṛta have been faithfully passed down orally/verbally over thousands of years. The presence of this strong oral tradition does not preclude ancient written records. It seems that without a script, the Vēdic poets would have found it exceedingly difficult to meet rigorous standards of Sanskrit metric composition; the poets knew more than fifteen distinct metres of composition (7). Furthermore, Śukla Yajurveda XVII.2 says 'O Agni, may these bricks be mine own kine; one, and ten, and ten tens, a hundred, and ten hundreds, a thousand, and ten thousand a myriad, and a hundred thousand, and a million, and a hundred million, and an ocean middle and end, and a hundred thousand millions, and a billion' (14, 15). It is stated that counting involving such large numbers without some

form of written annotation is impossible (7). Also, it is to be noted that ancient people of India knew such notation of large numbers thousands of years ago; the concept of one million did not become common in the west until the nineteenth century CE (AD) (7). Furthermore, the geometric design of the Vēdic fire-altar involved mathematical calculation that could not possibly be done in the mind alone; there had to be some sort of writing involved (7). The ancient seers not only had the ability to write numbers, but also knew how to write literature.

Evidences of writing can be inferred from the Vēdas themselves: Ṛgvēda X.62.7 uses the term '*aṣṭa-karṇyaḥ*' meaning 'eight-marked ears' and refers to cattle – cattle that had their ears marked with numeral eight. Atharvavēda XIX.72.1 says that 'Vēda is to be placed back in the chest from where it was taken', implying that there was a written form of the Vēda then (16). Writing might have been executed on perishable material such as palm leaves, and birch bark or some other form of wood. The earliest form of available writing has been traced as far back as 3,300 BCE. Archeological findings from Mohenjo-Daro, Harappa and other sites reveal about 4,200 objects that have inscriptions on them. They are mainly carvings on seals, small pieces of soft-stone, and a few copper tablets. They reveal a surprisingly mature system of writing. There are about 400 different signs including numerals. The longest text is twenty-six signs long, with an average length of five signs (7).

Because of the false theory of 'Aryan Invasion of India' which had claimed that there was no Sanskrit or Vēda prior to the so called invasion around 1,500 BCE, it had been thought that the above Indus-valley script was probably related to old form of Tamil language, thus making deciphering of the script enigmatic. But now that the theory has been disproven and thus defunct, the script has been compared to Sanskrit language and the later Brahmi script. This comparison has revealed that the Indus-Sarasvati script evolved into the Brahmi script (7, 17).

Brāhmī stands for Goddess Sarasvatī the Goddess of learning. Brāhmī script was used by Emperor Ashoka to inscribe his edicts on stone pillars that are found all over India. Current evidence clearly shows that Brāhmī script is derived from the Indus-Sarasvatī script (7, 17). Scripts of all the modern languages of India have originated from the Brāhmī script. From Brāhmī, two prominent branches of scripts developed: The present-day Sanskrit script called the Dēvanāgarī, and the scripts of all the North Indian languages evolved from one branch; and the other branch 'Bhaṭṭiprolu Brāhmī' in South India, also known as 'Pallava Grantha' evolved into the languages of South India (8, 17). It is to be noted that all the South Indian and all the North Indian languages, including their scripts, evolved from Sanskrit.

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