

RIGVEDIC SARASVATI: MYTH AND REALITY

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*Ambitame, naditame, devitame, Sarasvati
Aprasasta iva smasi prasastim Amba naskriti.*

— (Rigveda – 2. 41. 16)

(O Sarasvati, you the best of mothers, the best of rivers, the best of gods ! Although we are of no repute, mother, grant us distinction.)

THIS is how a Rigvedic seer had expressed his feelings about a river which he had addressed as the best of rivers. In fact, all the chapters of the Rigveda are full of praises over a river referred to as Sarasvati. It is described as a “glorious, loudly roaring”, “strongly flowing” (Rv-7. 36. 6); “mighty river with great floods”, “most powerful among rivers”, “flowing from the mountains to the sea” (Rv-7. 95. 2); etc. There is an exclusive hymn (Rv-6. 61) in which the river is praised as “fierce”, “swifter than the other rapid streams”, “coming onward with tempestuous roar”, “bursting the ridges of the hills with its strong waves”; it springs from a “threefold source”, etc.

All these forceful utterances in the Rigveda and many other references in other post-Vedic literature to the Sarasvati river had created a lot of interest among the Indologists and the scholars of ancient Indian history. They wondered, whether there was a real river in the geographical region of the Vedic people which matched the description in the literatures. Scholars were divided into two schools. One group sought a separate river in the relevant geography of the past, somewhere in between the river

Sindhu and the river Ganga of northern India, which had become dry in course of time and lost in the desert. The second group felt that the present river-system of northern India precludes any possibility of providing space to another big river as prominent as narrated in the Rigveda. They held that the Rigvedic Sarasvati is a poetic depiction of the grand river Sindhu, or any other big river of the region. However, it was left at that, as a disputed case, unresolved till now, awaiting further investigation and more data.

A FANATIC TURN

Recently the entire debate has taken a new turn. It is known to the informed circles that with the advent of satellite imaging technology it has now become possible to get a picture of a vast geographical region with quite sharp resolution. Since the Sindhu-Ganga sub-Himalayan peninsula (now divided between India and Pakistan) is the focus of a very ancient civilization, it has always attracted the attention of historians, archaeologists and Indologists. Naturally, when the technology became available, many interesting pictures emerged of the area which helped to see its geography within a vast canvas and in minute detail. Many dry-beds of big and small rivers, many palaeochannels of now lost streams and rivulets, etc. have been discovered, with the help of which a possibility has been created to locate and tap potential sources of ground water. For the arid area of Rajasthan it is surely a piece of good news. In fact, many canal irrigation

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projects are in progress in this region using the upstreams of the existing river system and the dry beds of the now-defunct old rivers.

But an interested circle, among whom there are some professional scientists and historians, has seized upon some of these satellite images and lodged a claim in public as well as professional forums that the lost channel of the Sarasvati river has been ultimately discovered. This, they further claimed, proved that the Vedic narratives are not mere mythologies, but refer to real and historical entities. The Geological Society of India, the professional platform of the geologists, and the Maharaj Shahjirao University of Vadodara, jointly organized a symposium on this issue in 1997. Most of the speakers were so chosen that they would support the thesis of discovery of the river Sarasvati in more or less scientific, precisely speaking, geological terms. Later, the Society published the proceedings of the symposium together with some other articles to give it a comprehensive look. An article was reproduced from 'Mantana', the theoretical mouthpiece of the RSS. Moreover, Dr. B. P. Radhakrishna, the Chairman of the Society, and Dr. S. S. Merh, the joint editors of the publication commented in their Introduction, "Our approach to the Veda—the oldest literature available to mankind, should not be as towards a mythological or religious text belonging to one religion, but as a record of geological and historical events of the past" [1]. From this, one thing is clear. Behind the search for the Rigvedic Sarasvati river lies not a simple academic or fact finding interest as it appears. There is more to it than visible.

It is seen that some people want to popularize the river episode to a much larger audience than usual. Some web-sites on Sarasvati have been introduced in the in-

ternet. It is reported there that various agencies of the Union Government are seriously engaged in reviving the famous Rigvedic river to its ancient status with the help of modern technology. A vast amount of money has been allotted by the Union Government for the purpose [2]. Actually, with the patronage of the BJP-led Government, this Hindutvavadi lobby has been trying to hijack the irrigation projects as a Vedic Sarasvati revival programme, with an ambition to promote some "heritage sites" as "pilgrimage sites" [3].

The Sarasvati episode was synchronized with a claim by Mr. N. S. Rajaram that he had deciphered all the Harappan scripts. Last year it was circulated to the press as the most significant event of the century. This year a book co-authored by N. S. Rajaram and N. Jha with the title "The Deciphered Indus Script: Methodology, reading, interpretations", has been published by the Aditya Prakashan, New Delhi which contains their 'discoveries'. This has attracted serious criticism from the relevant experts.

FROM AYODHYA TO HARAPPA

But both these issues have been correlated with a claim that has a far-fetched significance. The 'palaeontology' of the river Sarasvati has been identified with further back-dating of the Rigvedic culture than presently presumed, pushing it even beyond the time of onset of the Harappan civilization (which is precisely known). Dr. Radhakrishna writes: "Geological record points to a period of aridity 10,000 years ago, at the end stages of Pleistocene glaciation, which gradually changed to a wet phase. Copious rainfall in the Himalayan region gave rise to innumerable rivers which flowed down in cascades bringing enormous amounts of water and silt. The plains of Punjab, Rajasthan and north Gujarat thus came to be one of the most

fertile tracts, fed by copious supply of life-giving water as well as silt. The region really became a paradise on earth and it was in this land watered by the great Sarasvati and its tributaries that a new civilization — the Vedic civilization of the Aryans — took shape in *Aranyas* (forests) and *Ashramas* (hermitages). For nearly three thousand years from 6000 to 3000 B.C. this civilization flourished, sowing the seeds of agriculture and settled way of life. The antiquity of Vedic civilization is thus intricately woven with the story of the birth and career of river Sarasvati which had its source in the high Himalaya within sight of Manasa Sarovar at the foot of Kailas” [4].

N.S. Rajaram, who also authored “From Sarasvati River To The Indus Script” (1999), gave a lecture on “From Harappa to Ayodhya” in 1997 which was later published in the form of a booklet. These titles themselves eloquently narrate the primary motive of the author behind so much of intellectual exercise over so vast a research area, quite unlikely for a specialized scholar. It smacks of a purpose totally different from academic and scientific interest. Those who had taken pride in public demolition of a 700-year old archaeological monument in Ayodhya in the name of religion now target their weapons on the historical status of Harappan civilization.

The ‘discovery’ of the lost channel of the river Sarasvati has been linked with the ‘deciphering’ of the Indus scripts, which according to Rajaram represents the late-Vedic Sanskrit language. It is ‘late-Vedic’ because it originated after the Vedic culture. To show the continuity of the Harappan and the Vedic cultures he has also ‘discovered’ a horse seal in Indus Valley archaeology. So far the absence of any horse motif among the Harappan seals was contrasted against the profuse references to horse in Vedic literature to indi-

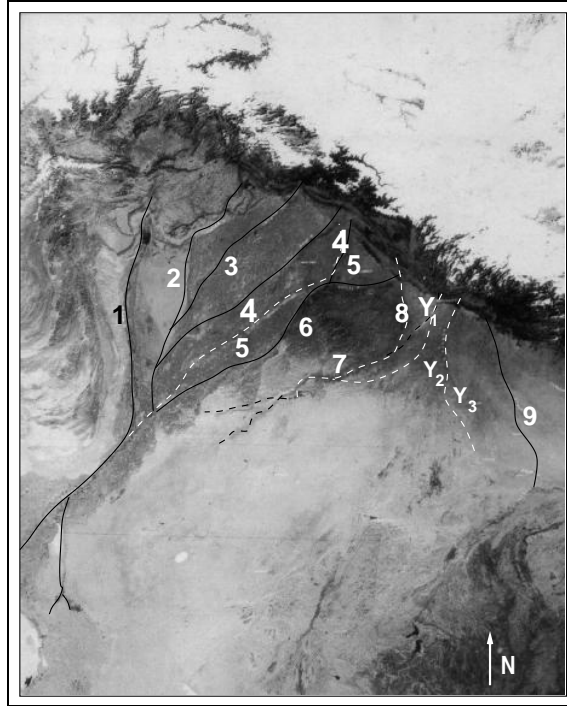


Figure 1: Landsat imagery showing NW Indian rivers and palaeochannels after Yash Pal et al. [6] (lines superimposed for better clarity). 1: Sindhu, 2: Jhelam, 3: Chenab, 4: Ravi, 5: Beas, 6: Sutlej, 7: Ghaggar, 8: Palaeo Sutlej on Ghaggar, Y₁ and Y₂: Palaeo-Yamuna on Ghaggar, Y₃: Palaeo-Yamuna shifting, 9: Present Yamuna. Firm lines: present channels, broken lines: (white) palaeo and (black) dry channels.

cate the ethnographical difference and historical disconnection between the two cultures. Now Rajaram is there ready with a computer simulated horse image supposedly developed from a broken seal (usually referred to as Mackay 453) obtained from Harappa. Armed with these new discoveries they have already raised a voice to rewrite the entire history ancient India in new terms.

In fact also they claim: 1) Vedic culture

is much older than Harappan civilization; 2) A settled agricultural population — the so-called Aryans — developed the Rigvedic culture on the banks of the river Sarasvati; 3) The river Sarasvati was an important and a very large river in the sub-Himalayan peninsula before the advent of the Harappan civilization, which gradually dried up; 4) The Harappan civilization was a continuation of the Vedic culture which in course of time developed from a village culture into an urban culture; 5) It is, therefore, wrong to ethnically differentiate between the two cultures; they belong to the same ethnic group of people — namely, the 'Aryans'; 6) The ancient Indian civilization should not be termed Indus Valley Civilization, it should better be referred to as the Sarasvati Civilization, or, at most as the Sarasvati-Sindhu Civilization; etc. etc. [5].

SARASVATI: A LOST RIVER OR A MYTH?

In order to examine the validity of these claims, let us, first of all, recount the facts about the river, which is sought to be established as the Sarasvati. There is a flat, shallow and very wide river called Ghaggar in its upper segment (mostly within India), and Hakra in its lower part now in Pakistan. It is born in the Shivalik hills and receives rain water in the upper catchment area. It is, therefore, an occasional river, more or less dry throughout the year except in the rainy season. A visual examination of the LANDSAT satellite images obtained during 1972-79 shows that in some unknown past the river Satadru (also known as Sutlej or Satluj) used to flow Southward, while, the river Yamuna originally flowed South-West, both of them feeding the river Ghaggar at Shatrana 60 km South of Patiala [6; see Fig. 1]. It may be recalled here that a geologist R.D. Oldham had also speculated such a possibility in 1886 [7]. Sir Aurel Stein, a

reputed archaeologist, who had also studied the entire northwestern (undivided) India in the thirties and forties, wondered whether Satadru and Yamuna were once the two tributaries to feed the Ghaggar-Hakra with round the year supply [8].

It is this idea which has been seized by some people who now deem it fit to claim that this Yamuna-Hakra palaeochannel represents the so long lost river Sarasvati and conforms to the Rigvedic description. But does it really fit? And what is more, does it fit with the long-held Vedic tradition?

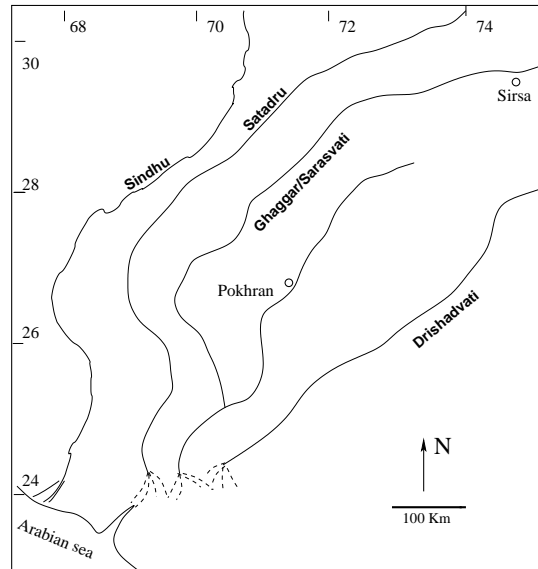


Figure 2: Ancient rivers after Sridhar et al. [1].

Whenever a material entity is examined in scientific discourses, it involves gathering empirical data and their interpretation. When all examiners agree on the data and the interpretation, it may be accepted as a scientific fact. On the question of Sarasvati river, just the reverse is the case. All the observers who accept it as a real river, take the cue from the Rigveda. But when they ex-

amine and interpret the available data, they differ among themselves about the who-is-who of the ancient rivers, as seen in Figs. 2 and 3. Five different papers in the same book “Vedic Sarasvati” present five different pictures of the Sarasvati river in relation to the other visible rivers [9]. No attempt is made to account for the discrepancy — not even by the editors, two geologists by profession. For the disappearance of Sarasvati also, different authors assign widely varying times.

The first thing to note is that all the other rivers mentioned in Rigveda have been extant at least for the last 3.5 thousand years (and if we consider the new dating of the Rigveda according to Radhakrishna, Rajaram & Co., for 8 thousand years). It is only the biggest and the strongest of them, the Sarasvati, which got lost in the Thar desert of the Kutchch. Is it possible or conceivable? It is one thing to say that rivers often change their courses, and so may have been done by the Sarasvati; it is completely different thing to say that the river has been lost in the deserts. For so big a river as the Rigvedic Sarasvati to exist and then perish, it requires a major geological event. However, such an event would have affected not only the Sarasvati but the entire river-system of the whole region. As far as our knowledge goes, there is no such report for the last, say, 10000 years, let alone the late-Vedic period.

Secondly, some geologists show that in cases where great rivers with substantial supply of water at the source and catchment areas round the year flow through deserts, they overcome the resistance of aridity to make way for their courses. For example, the river Nile has been flowing along its 1600-km lower course through the Sahara, the fiercest desert of the world. Similarly, the river Colorado flows through a comparable desert for almost 900 kms,

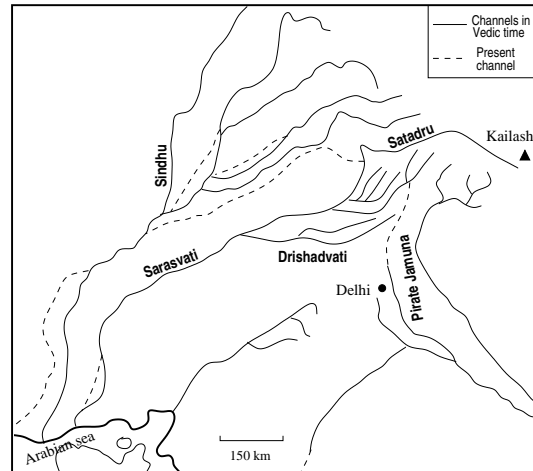


Figure 3: Vedic Sarasvati after Kalyanaraman [1].

the last 250 km of which pass through the Sonoran, the hottest desert of the world. In both cases the rivers have been able to cut across the desert bed with their current. The Thar desert of Rajasthan is much weaker and quite younger compared to the two cases cited. It is, therefore, unlikely that a big river, the ‘naditama’ which was supposed to receive continuous supply from the upper Himalayan glacier as well as from precipitation below, could not survive in the desert area.

Thirdly, in the geological sciences there are well-defined methods of determining the period in which a certain river-bed was active. No such study is known to have been carried out in the Ghaggar-Hakra paleochannel, without which there is no scientific basis of claiming that the river was active within the past 5,000 years. However, certain geological indicators point to the logical possibilities. According to some research data, all the major rivers of northern India (and Pakistan) have been flowing more or less in their present channels (within their meandering belts) for the last

30,000 years [10]. C. F. Oldham, a geologist of the 19th century observed in 1893: "Between Sutlej and Yamuna there is no opening in the Himalaya through which a large river could have entered the plains" [11]. This means that even if the confluence of Satadru and Yamuna were able to make a big river like the Rigvedic Sarasvati out of the Shivalik-born Ghaggar, it had ceased to do so at least for the last thirty thousand years. Because, Rigveda explicitly associates the Satadru with Vitasta and refers to their confluence (Rv - 3.33), as at present, when it has already taken the westerly course. It can therefore be inferred that the Vedic poets had not seen that palaeo-Sarasvati. What they had described in the Vedic verses refer to something else.

Fourthly, it is interesting to note here that Ptolemy, the renowned scientist of Alexandria in the 2nd century A.D., who wrote a book on geography presenting many valuable information about south Asia in general and northwestern India in particular, mentioned all the important rivers of this Sindhu-to-Ganga region are. However, quite significantly there is no reference about Sarasvati. This implies that at least by that time there was no such big river in the region.

Lastly, there is a strong cultural-historical and social psychological argument. Let us suppose that the dry bed of the Ghaggar-Hakra represents the remnants of the river Sarasvati. And this Sarasvati was supposedly associated with all the cultural ethos of the Vedic people. It is therefore natural to expect that the river, although no longer as powerful as earlier, should at least preserve its nominal title as such to the adherents of Vedic tradition. Is it not, therefore, very strange that during the entire post-Vedic era of nearly three thousands of years up to now, Sindhu

remained Sindhu, Satadru remained Satadru, Yamuna remained Yamuna, Ganga remained Ganga, but the most important river Sarasvati became Ghaggar? Moreover, if it is kept in mind that many minor rivers in different isolated parts of India have been given the name Sarasvati by the Hindus out of a religious nostalgia, is it not very peculiar that they should rename the original Sarasvati into a desanscritized drab title of local dialect? C. F. Oldham also was bothered by this peculiar fact: "How the sacred river came to lose its own name and acquire that of its former tributary is not known" [12].

It is this absence of any material evidence or cultural tradition that prompted many historians and archaeologists — both Indian and foreign — to conclude that the word "Sarasvati" is not actually a noun but an adjective which qualified a river evoking strong sense of respect among the Vedic tribes [13]. They point out the fact that the Sanscrit word Sarasvati can be split into the following two parts: saras (sarah = water) + vati (= filled with), which indicates the meaning of qualifying something as being full of water. It can also be used as an adjective. These scholars therefore argued that the Rigvedic tribes had probably adored the majestic river Sindhu as Sarasvati, i.e., as a river with large dimension. With the passage of time, we may further surmise, the later generations of the Vedic tribes who gradually moved eastwards and southwards and settled on the banks of the Ganga and Yamuna, carried with them a popular and collective memory of the dimensions of Sindhu. Since then the adjective probably got converted into a noun, and perhaps a popular myth arose around the existence of another river, as big as river Sindhu, or even bigger. Since the other big rivers like Ganga had already been given proper names, there was no other river left

to be identified as the Sarasvati. Hence the search for a river Sarasvati around different parts of the country. It also gave birth to an imaginary river Sarasvati which joined the confluence of Ganga and Yamuna at the Triveni-Sangam near Allahabad. A real Sarasvati on the bed of river Ghaggar-Hakra in Vedic times could hardly explain all these subsequent developments.

In this connection another interesting fact needs be recalled. Associated with the Rigvedic exhortations of river Sarasvati is a post-Vedic and Puranic tradition over 'vinashan' (disappearance) of Sarasvati. In the Mahabharata and other contemporary texts it is said that Sarasvati, after entering the kingdom of the nishadas, the lower caste of the brahmanical era, felt embarrassed and went under ground in the sands [14]. This legend also seems to support the above hypothesis. In order to sustain the myth of existence of the Sarasvati in face of its non-reality, it was necessary to generate another, complementary myth which would explain away the visible non-existence of the river.

Thus there is no reason to assume a palaeo-river matching the Rigvedic description of the so-called Sarasvati, nor has there been obtained any new data to look for it in the relevant region. The entire fanfare created around its existence, disappearance and recent discovery is geared to the ongoing attempts of the BJP-led Governments at the centre and in some States to boost up Hindu religious sentiments and prejudices over some of the sensitive areas of Indian history.

Let us see how.

OCCUPY HARAPPA AGAIN?

Only two years back Mr. M. M. Joshi, the Union HRD Minister, had proposed to a Conference of the education ministers of the States that they wanted to intro-

duce Sarasvati Vandana (chanting prayers to the goddess Sarasvati) in all schools of the country. All the non-BJP ministers rejected the proposal and it was discarded for the time being. The BJP minister however did not give in so easily. Now they are trying to create a new craze over the loss and discovery of the Rigvedic Sarasvati river and relate it on the one hand with the Hindu goddess of learning and on the other with the existence of a Vedic civilization prior to Harappa. And then they want to float the claim that Harappa's was the epitome of the developed Vedic culture.

Here, certain terms should be clarified and precisely defined.

For example, the term 'Arya' (Aryan) being applied on the Vedic tribes has created a lot of confusion among the scholars as well as common people. 'Aryan' in modern usage refers to a very large family of languages, also called Indo-European family, spread almost all over the world. It does not connote any particular ethnic or racial community. In the conventional sense, taken from the Vedic parlance, it means 'great', 'noble', 'powerful', 'higher-caste born', etc. There is no harm if the Vedic tribes call themselves great, noble, powerful, etc. or to place themselves higher in their own caste-scale. Who does not want to occupy the higher places?

But if a student of history today reads the same meaning of the word and attaches it on the ancient Vedic tribes, he falls into a dilemma. He finds the Vedic tribes in a neolithic village culture, still in semi-nomadic and pastoral mode of living, yet to attain the settled agricultural way of life, as documented in the vast Vedic literature. He then finds the Harappan civilization at a much developed and higher level of urban culture, as evinced by the hard facts of established archaeology. He also finds that the Vedic tribes attained the urban culture more or

less 1500 years after the end of the Harappan civilization. He cannot reconcile these facts with the 'Aryan' image of the Vedic tribes. Hence begins the fitful attempts to 'discover' some 'noble' deeds and achievements of these tribes¹. Where facts are not available, facts are distorted or fabricated. This is why many things are interpolated within the data about river Ghaggar-Hakra to 'discover' the Rigvedic Sarasvati in its old history.

There are 1600-odd Harappan settlements spread throughout the northwestern India and eastern parts of Pakistan as available to archaeology at present. Out of that about 75% have been found on the two sides of the dry bed of Ghaggar-Hakra. Archeologists have observed that this is a common feature of all pre-iron age settlements: they are not located in the "floodplains" of large rivers where dense forests are nourished by the annual supply of water. The reason is obvious. Stone and copper-age implements were not sufficient to clear such dense forests as required for urban settlements. The Harappans were at the age of copper and bronze, and so it is natural for a majority of them to settle away from the grand river Sindhu. Clearing the dense forests on the bank of Sindhu required heavy weapons made of iron. But iron age started in India not before the 7th century B.C. So naturally it was easier for the Harappans to settle on the banks of the weaker rivers like Ghaggar etc.

¹It is peculiar that these people do not see the real achievements of the Vedic people, without being Arya in Vedic sense. The Vedic tribes created the vast Vedic and post-Vedic literature, the oldest record of human literary activities in the world. They developed the grandeur Sanskrit language, most organized and refined among the world's ancient languages. They devised the most comprehensive alphabets with the maximum phonetic coverage. These achievements are all the more commendable because they had acquired these even when they were wandering in the forests at the level of village culture. — A. M.

Some people, failing to understand the point, capitalize this fact to claim that these Ghaggar-Hakra settlements are not Harappan relics but belong to the Vedic people who had given birth to the civilization here, because this is the Sarasvati river of the Rigveda. Here they put forward a peculiar circular argument: How do you know these are Vedic settlements? They say, because these are on the banks of the Sarasvati. But how do you know this the Sarasvati river? Then they answer, because so many Vedic settlements are situated on its banks. They do not understand that assertions are not proofs. Both the statements have to be separately proved with geological and archaeological evidences. These people fail to see the simple thing that both the contentions cannot be simultaneously true. If Ghaggar had been the Rigvedic Sarasvati there would be very few pre-iron age settlements on its banks, as is clearly seen from the example of the Sindhu. If most of the Vedic tribes had really found the banks of this river suitable for settlement, it must have been more or less as it is today. In that case there is no question of its having been the Rigvedic Sarasvati. Let them choose whichever they prefer.

Another point. The search for Vedic Sarasvati is scientifically meaningful in the only sense that it might be the first definite material evidence for the location of the Vedic tribes. But for that the river must be unambiguously identified. On the other hand, calling Ghaggar-Hakra as Sarasvati does not automatically prove the adjacent settlements to be Vedic. This has also to be unambiguously established.

For us it is already clear that these could not be Rigvedic settlements. With radiocarbon method it is established beyond doubt that the Harappan settlements lasted till the 19th century B.C. [15]. On the other hand, many scholars at home and abroad

have determined the earliest possible time limit for the advent of the Rigvedic culture, by using the comparative linguistic method, to be the 15th century B.C. [16].

Secondly, there is another hard point to be reckoned with. Had the pastoralist Vedic tribes really developed the Harappan civilization, how is it that they could not build a single similar urban settlement during the 1500 years from the end of the Harappan civilization (19th century B.C.) to the beginning of the Magadh empire (4th century B.C.)?

Lastly, what Mr Rajaram has been trying to do is another line of sure demarcation between the two cultures. The Rigveda is resplendent with reference to horse, about 215 times. On the contrary, Harappan civilization is significantly conspicuous for absence of any horse motif in its archaeological findings. So, in order to establish a link between the two cultures, Mr. Rajaram “cooked up” a horse motif in a broken seal from Harappa by directed lighting so that the broken part looks like the head of a horse. When Rajaram tried to reconstruct a horse out of a broken seal to prove Vedic link of the Harappan settlements, he ignored a quite irrefutable fact of palaeontology: No horse fossil so far found in India dates back before 2000 B.C. [17]. So two conclusions inevitably follow from this: (1) Harappan civilization had no experience of the horse as a domestic animal. And (2) the Vedic tribes which had intimate experience of horse, also could not be precedent to or simultaneous with Harappa.

We must remember that ‘culture’ and ‘civilization’ are not synonymous terms in anthropology and history. ‘Culture’ means any mode of collective livelihood of a definite community of people. ‘Civilization’ connotes an urban culture with a definite level of production and distribution, division of labour, writing and measuring system. So,

in scientific literature, one does not speak of Vedic ‘civilization’. One can only refer to Vedic ‘culture’. There is nothing derogatory in this characterization. It only points to the different levels of human achievements in different spaces and times. When it is already well documented that Vedic culture did not reach the level of a civilization, it is simply ridiculous to identify it with the Harappan civilization.

Once upon a time the Vedic tribes had occupied the territory of the Harappan settlements. Today a section of their distant descendants are trying to transfer the credit of creating the magnificent masterpieces of Harappa and Mohenjo-daro onto their accounts.

RESIST REVISION OF HISTORY AND GEOGRAPHY

Ancient Indian history is yet to be totally understood. There are many gaps in between the facts in terms of space and time. Whatever structure of this history has it been possible to reconstruct is due to extremely laborious research efforts of a large group of Indian and western scholars. They have done it not out of a mere academic interest, but because they have earnestly loved this country and the cultural and intellectual achievements of her past, irrespective of which community has achieved what. Religion has been only one aspect or area of these achievements. It is historically wrong to view these as religious achievements. It is also historically wrong to focus religion as the fount-spring of all these achievements. What the BJP-minded intellectuals are trying to do is just this wrong and unhistorical reduction of a vast mosaic of variegated activities into a drab monotone of religious ceremony. They don’t understand how this undermines the country’s past heritage. Or, may be, they want to bring all achievements within the monopoly

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of the religion they belong to, no matter how much is history vitiated thereby. Or, we are afraid, they want to create a frenzy over this religion in the name of protection of its past glory, however falsified it might be.

We must be on guard. We must defend the scientific method of research in the study of Indian history. We must oppose these attempts to revise history and geography according to any body's or group's design. □

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17. Asko Parpola — "The Coming of the Aryans to Iran and India and the Cultural and Ethnic Identity of the Dasas", in International Journal of Dravidian Linguistics, XVII, No.2, p.150; Richard Meadow — "Continuity and Change in the agriculture of the Great Indus Valley; The Palaeo-Ethnobotanical and Zooarchaeological Evidence" in J.M. Kenoyer (ed.) — Old Problems and New Perspectives in the Archaeology of South India, University of Wisconsin, 1989; p.70.

Note — Following the publicity of Rajaram's 'discoveries', many informed criticisms were published in some of the renowned journals of our country. We may refer our readers to:

- a) Michael Witzel and Steve Farmer — "Horseplay in Harappa"; Frontline, 13 October 2000
- b) Communications by N.S. Rajaram, Asko Parpola, Iravatham Mahadevan; Frontline — 24 November 2000,
- c) Witzel and Farmer — "New Evidence on the 'Pitldown Horse' Hoax"; ibid,
- d) Witzel — "A Bushy Tail: The Pitldown Horse"; Outlook — 6 November 2000.