

HORSEPLAY IN HARAPPA

The Indus Valley Decipherment Hoax

MICHAEL WITZEL, a Harvard University Indologist, and STEVE FARMER, a comparative historian, report on media hype, faked data, and Hindutva propaganda in recent claims that the Indus Valley script has been decoded.

LAST summer the Indian press carried sensational stories announcing the final decipherment of the Harappan or Indus Valley script. A United News of India dispatch on July 11, 1999, picked up throughout South Asia, reported on new research by “noted historian, N.S. Rajaram, who along with palaeographer Dr. Natwar Jha, has read and deciphered the messages on more than 2,000 Harappan seals.” Discussion of the messages was promised in Rajaram and Jha’s upcoming book, *The Deciphered Indus Script*. For nearly a year, the Internet was abuzz with reports that Rajaram and Jha had decoded the full corpus of Indus Valley texts.

This was not the first claim that the writing of the Indus Valley Civilisation (fl. c. 2600-1900 BCE) had been cracked. In a 1996 book, American archaeologist Gregory Possehl reviewed thirty-five attempted decipherments, perhaps one-third the actual number. But the claims of Rajaram and Jha went far beyond those of any recent historians. Not only had the principles of decipherment been discovered, but the entire corpus of texts could now be read. Even more remarkable were the historical conclusions that Rajaram and his collaborator said were backed by the decoded messages.

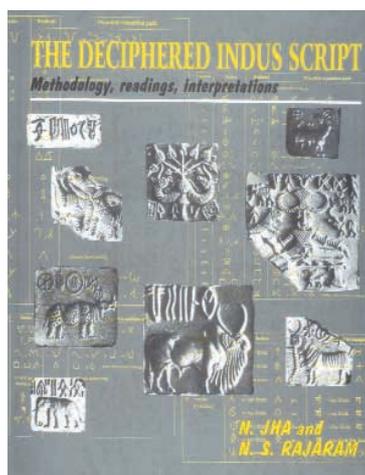
The UNI story was triggered by announcements that Rajaram and Jha had not only deciphered the Indus Valley seals but had read “pre-Harappan” texts dating to the mid-fourth millennium BCE. If confirmed, this meant that they had decoded mankind’s earliest literary message. The “texts” were a handful of symbols scratched on a pottery tablet recently discovered by Harvard University archaeologist Richard Meadow. The oldest of these, Rajaram told the UNI, was a text that could be translated “Ila surrounds the blessed land” – an oblique but unmistakable reference to the Rigveda’s Saraswati river. The suggestion was that man’s earliest message was linked to India’s oldest religious text.¹ The claim was hardly trivial, since this was over 2,000 years before Indologists date the Rigveda – and more than 1,000 years before Harappan culture itself reached maturity.

Rajaram’s World

After months of media hype, Rajaram and Jha’s *The Deciphered Indus Script*² made

it to print in New Delhi early this year. By midsummer the book had reached the West and was being heatedly discussed *via* the Internet in Europe, India, and the United States. The book gave credit for the decipherment method to Jha, a provincial religious scholar, previously unknown, from Farakka, in West Bengal. The book’s publicity hails him as “one of the world’s foremost Vedic scholars and palaeographers.” Jha had reportedly worked in isolation for twenty years, publishing a curious 60-page English pamphlet on his work in 1996. Jha’s study caught the eye of Rajaram, who was already notorious in Indological circles. Rajaram took credit for writing most of the book, which heavily politicised Jha’s largely apolitical message. Rajaram’s online biography claims that their joint effort is “the most important breakthrough of our time in the history of Indian history and culture.”

Boasts like this do not surprise battle-scarred Indologists familiar with Rajaram’s work. A U.S. engineering professor in the 1980s, Rajaram re-invented himself in the 1990s as a fiery Hindutva propagandist and “revisionist” historian. By the mid-1990s, he could claim a following in India and in *émigré* circles in the U.S. In manufacturing his public image, Rajaram traded heavily on claims, not justified by his modest research career, that before turning to history “he was one of America’s best-known workers in artificial intelligence and robotics.” Hyperbole abounds in his online biography, posted at the ironically named “Sword of Truth” website. The Hindutva propaganda site, located in the United States, pictures Rajaram as a “world-renowned” expert on “Vedic mathematics” and an “authority on the history of Christianity.” The last claim is supported by violently anti-Christian works carrying titles like *Christianity’s Collapsing Empire and Its Designs in India*. Rajaram’s papers include his “Search for the historical Krishna” (found in the Indus Valley c. 3100 BCE); attack a long list of Hindutva “enemies” including Christian missionaries, Marxist academics, leftist politicians, Indian Muslims, and Western Indologists; and glorify the mob destruction of the Babri Mosque in 1992 as a symbol of India’s emergence from “the grip of alien imperialistic forces and their surro-



1 For the UNI dispatch, see <http://www.indiaserver.com/thehindu/1999/07/12/stories/02120001.htm>. Typically enough, in light of what we show below, Rajaram misidentified the early text discovered by Meadow, working off a photo of a *different* potsherd published in error by a BBC reporter. For the story of this Rajaram fiasco, with links, see <http://www.safarmer.com/meadow.html>.

2 N. Jha and N.S. Rajaram, *The Deciphered Indus Script: Methodology, readings, interpretations*, Aditya Prakashan, New Delhi, 2000; pages xxvii + 269, Rs. 950.



Harappa, area of the 'parallel walls.' Courtesy of the Archaeological Survey of India, Punjab Photographic Volume 463/86.

gates." All Indian history, Rajaram writes, can be pictured as a struggle between nationalistic and imperialistic forces.

In Indology, the imperialistic enemy is the "colonial-missionary creation known as the Aryan invasion model," which Rajaram ascribes to Indologists long after crude invasion theories have been replaced by more sophisticated acculturation models by serious researchers. Rajaram's cartoon image of Indology is to be replaced by "a path of study that combines ancient learning and modern science." What Rajaram means by "science" is suggested in one of his papers describing the knowledge of the Rigveda poets. The Rigveda *rishis*, we find, packed their hymns with occult allusions to high-energy physics, anti-matter, the inflationary theory of the universe, calculations of the speed of light, and gamma-ray bursts striking the earth three times a day. The latter is shown in three Rigveda verses (3.56.6, 7.11.3, 9.86.18) addressed to the god Agni. The second Rajaram translates: "O Agni! We know you have wealth to give three times a day to mortals."

One of Rajaram's early Hindutva pieces was written in 1995 with David Frawley, a Western "New Age" writer who likes to find allusions to American Indians in the Rigveda. Frawley is transformed *via* the "Sword of Truth" into a "famous American Vedic scholar and historian." The book by Rajaram and Frawley proposes the curious thesis that the Rigveda was the product of a complex urban and maritime civilisation, not the primitive horse-and-chariot culture seen in the text. The goal is to link the Rigveda to the earlier Indus Valley Civilisation, undercutting any possibility of later "Aryan" migrations or relocations of the Rigveda to "foreign" soil. Ancient India, working through a massive (but lost) Harappan literature, was a prime source of civilisation to the West.

The Deciphered Indus Script makes similar claims with dif-

ferent weapons. The Indus-Saraswati Valley again becomes the home of the Rigveda and a font of higher civilisation: Babylonian and Greek mathematics, all alphabetical scripts, and even Roman numerals flow out to the world from the Indus Valley's infinitely fertile cultural womb. Press releases praise the work for not only "solving the most significant technical problem in historical research of our time" – deciphering the Indus script – but for demonstrating as well that "if any 'cradle of civilisation' existed, it was located not in Mesopotamia but in the Saraswati Valley." The decoded messages of Harappa thus confirm the Hindutva propagandist's wildest nationalistic dreams.

Rajaram's 'Piltdown Horse'

Not unexpectedly, Indologists followed the pre-press publicity for Rajaram's book with a mix of curiosity and scepticism. Just as the book hit the West, a lively Internet debate was under way over whether *any* substantial texts existed in Harappa – let alone the massive lost literature claimed by Rajaram. Indus Valley texts are cryptic to extremes, and the script shows few signs of evolutionary change. Most inscriptions are no more than four or five characters long; many contain only two or three characters. Moreover, character shapes in mature Harappan appear to be strangely "frozen," unlike anything seen in ancient Mesopotamia, Egypt or China. This suggests that expected "scribal pressures" for simplifying the script, arising out of the repeated copying of long texts, was lacking. And if this is true, the Indus script may have never evolved beyond a simple proto-writing system.

Once Rajaram's book could actually be read, the initial scepticism of Indologists turned to howls of disbelief – followed by charges of fraud. It was quickly shown that the methods of Jha

and Rajaram were so flexible that virtually any desired message could be read into the texts. One Indologist claimed that using methods like these he could show that the inscriptions were written in Old Norse or Old English. Others pointed to the fact that the decoded messages repeatedly turned up “missing links” between Harappan and Vedic cultures – supporting Rajaram’s Hindutva revisions of history. The language of Harappa was declared to be “late Vedic” Sanskrit, some 2,000 years before the language itself existed. Through the decoded messages, the horseless Indus Valley Civilisation – distinguishing it sharply from the culture of the Rigveda – was awash with horses, horse keepers, and even horse rustlers. To support his claims, Rajaram pointed to a blurry image of a “horse seal” – the first pictorial evidence ever claimed of Harappan horses.

Chaos followed. Within weeks, the two of us demonstrated that Rajaram’s “horse seal” was a fraud, created from a computer distortion of a broken “unicorn bull” seal. This led Indologist wags to dub it the Indus Valley “Piltown horse” – a comic allusion to the “Piltown man” hoax of the early twentieth century. The comparison was, in fact, apt, since the “Piltown man” was created to fill the missing link between ape and man – just as Rajaram’s “horse seal” was intended to fill a gap between Harappa and Vedic cultures.

Once the hoax was uncovered, \$1000 was offered to anyone who could find *one* Harappan researcher who endorsed Rajaram’s “horse seal.” The offer found no takers.

The “Piltown horse” story has its comic side, but it touches on a central problem in Indian history. Horses were critical to Vedic civilisation, as we see in Vedic texts describing horse sacrifices, horse raids, and warfare using horse-drawn chariots. If Rigvedic culture (normally dated to the last half of the second millennium BCE) is identified with Harappa, it is critical to find evidence of extensive use of domesticated horses in India in the third millennium BCE. In the case of Hindutva “revisionists”

like Rajaram, who push the Rigveda to the fourth or even fifth millennium, the problem is worse. They must find domesticated horses and chariots in South Asia thousands of years before either existed anywhere on the planet.

Evidence suggests that the horse (*Equus caballus*) was absent from India before around 2000 BCE, or even as late as 1700 BCE, when archaeology first attests its presence in the Indus plains below the Bolan pass. The horse, a steppe animal from the semi-temperate zone, was not referred to in the Middle East until the end of the third millennium, when it first shows up in Sumerian as *anshe.kur* (mountain ass) or *anshe.zi.zi* (speedy ass). Before horses, the only equids in the Near East were the donkey and the half-ass (hemione, onager). The nearly untrainable hemiones look a bit like horses and can interbreed with them, as can donkeys. In India, the hemione or *khur* (*Equus hemionus khur*) was the only equid known before the horse; a few specimens still survive in the Rann of Kutch.

The appearance of domesticated horses in the Old World was closely linked to the development of lightweight chariots, which play a central role in the Rigveda. The oldest archaeological remains of chariots are from east and west of the Ural mountains, where they appear c. 2000 BCE. In the Near East, their use is attested in pictures and writing a little later. A superb fifteenth-century Egyptian example survives intact (in Florence, Italy); others show up in twelfth-century Chinese tombs.

Chariots like these were high-tech creations: the poles of the Egyptian example were made of elm, the wheels’ felloes (outer rim) of ash, its axles and spokes of evergreen oak, and its spoke lashings of birch bark. None of these trees are found in the Near East south of Armenia, implying that these materials were imported from the north. The Egyptian example weighs only 30 kg or so, a tiny fraction of slow and heavy oxen-drawn wagons, weighing 500 kg or more, which earlier served as the main wheeled transport. These wagons, known since around 3000 BCE, are

Rajaram’s ‘computer enhancement’ of Mackay 453, transforming it into a ‘horse seal’
(From the book *The Deciphered Indus Script*, p. 177)

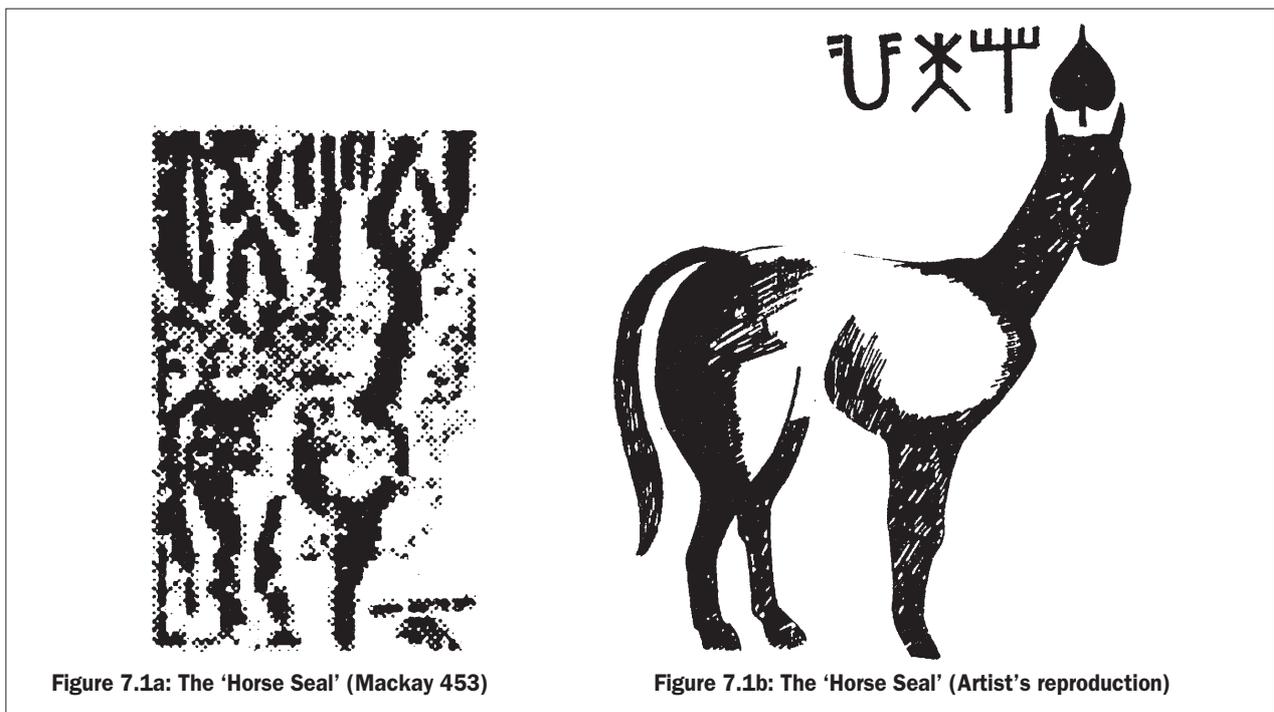


Figure 7.1a: The ‘Horse Seal’ (Mackay 453)

Figure 7.1b: The ‘Horse Seal’ (Artist’s reproduction)

similar to those still seen in parts of the Indian countryside.

The result of all this is that the claim that horses or chariots were found in the Indus Valley of the third millennium BCE is quite a stretch. The problem is impossible for writers like Rajaram who imagine the Rigveda early in the fourth or even fifth millennium, which is long before *any* wheeled transport – let alone chariots – existed. Even the late Hungarian palaeontologist S. Bökönyi, who thought that he recognised horses' bones at one Indus site, Surkotada, denied that these were indigenous to South Asia. He writes that "horses reached the Indian subcontinent in an already domesticated form coming from the Inner Asiatic horse domestication centres." Harvard's Richard Meadow, who discovered the earliest known Harappan text (which Rajaram claims to have deciphered), disputes even the Surkotada evidence. In a paper written with the young Indian scholar, Ajita K. Patel, Meadow argues that not *one* clear example of horse bones exists in Indus excavations or elsewhere in North India before c. 2000 BCE.³ All contrary claims arise from evidence from ditches, erosional deposits, pits or horse graves originating hundreds or even thousands of years later than Harappan civilisation. Remains of "horses" claimed by early Harappan archaeologists in the 1930s were not documented well enough to let us distinguish between horses, hemionos, or asses.

All this explains the *need* for Rajaram's horse inscriptions and "horse seal." If this evidence were genuine, it would trigger a major rethinking of all Old World history. Rajaram writes, in his accustomed polemical style:

The 'horse seal' goes to show that the oft repeated claim of "No horse at Harappa" is entirely baseless. Horse bones have been found at all levels at Harappan sites. Also... the word 'as'va' (horse) is a commonly occurring (sic) word on the seals. The supposed 'horselessness' of the Harappans is a dogma that has been exploded by evidence. But like its cousin the Aryan invasion, it persists for reasons having little to do with evidence or scholarship.

Rajaram's "horse," which looks something like a deer to most people, is a badly distorted image printed next to an "artist's reproduction" of a horse, located below a Harappan inscription.⁴ The original source of the image, Mackay 453, is a tiny photo on Plate XCV of Vol. II of Ernest Mackay's *Further Excavations of Mohenjo-Daro* (New Delhi, 1937-38). The photo was surprisingly difficult to track down, since Rajaram's book does not tell you in which of Mackay's archaeological works, which contain thousands of images, the photo is located. Finding it and others related to it required coordinating resources in two of the world's best research libraries, located 3,000 miles apart in the United States.

Once the original was found, and compared over the Internet with his distorted image, Rajaram let it slip that the "horse seal" was a "computer enhancement" that he and Jha introduced to "facilitate our reading." Even now, however, he claims that the seal depicts a "horse." To deny it would be disastrous, since to do so would require rejection of his decipherment of the seal inscription – which supposedly includes the word "horse."

Once you see Mackay's original photo, it is clear that Rajaram's "horse seal" is simply a broken "unicorn bull" seal, the most common seal type found in Mohenjo-daro. In context, its identity is obvious, since the same page contains photos of more than two dozen unicorn bulls – any one of which would make a good "horse seal" if it were cracked in the right place.

What in Rajaram's "computer enhancement" looks like the "neck" and "head" of a deer is a Rorschach illusion created by distortion of the crack and top-right part of the inscription. Any suggestion that the seal represents a whole animal evaporates as soon as you see the original. The fact that the seal *is* broken is not mentioned in Rajaram's book. You certainly cannot tell it is broken from the "computer enhancement."

While Rajaram's bogus "horse seal" is crude, because of the relative rarity of the volume containing the original, which is not properly referenced in Rajaram's book, only a handful of researchers lucky enough to have the right sources at hand could track it down. Rajaram's evidence could *not* be checked by his typical reader in Ahmedabad, say – or even by Indologists using most university libraries.

The character of the original seal becomes clearer when you look more closely at the evidence. Mackay 453, it turns out, is not the photo of a seal at all, as Rajaram claims, but of a modern clay impression of a seal (field number DK-6664) dug up in Mohenjo-daro during the 1927-31 excavations. We have located a superb photograph of the original seal that made the impression (identified again by field number DK-6664) in the indispensable *Corpus of Indus Seals and Inscriptions* (Vol. II: Helsinki 1991, p. 63). The work was produced by archaeologists from India and Pakistan, coordinated by the renowned Indologist Asko Parpola. According to a personal communication from Dr. Parpola, the original seal was photographed in Pakistan by Jyrki Lyytikä specifically for the 1991 publication.

Like everyone else looking at the original, Parpola notes that Rajaram's "horse seal" is simply a broken "unicorn bull" seal, one of numerous examples found at Mohenjo-daro. Rajaram has also apparently been told this by Iravatham Mahadevan, the leading

Mackay 453 before its 'computer enhancement' by Rajaram. When you look at the original picture, it is clear that the seal impression is cracked.



³ See the comment by Meadow and Patel on Bökönyi's work in *South Asian Studies* 13, 1997, pp. 308-315.

⁴ For the original story of the debunking of the "horse seal," with links to other evidence, see <http://www.safarmer.com/horseseal/update.html>.

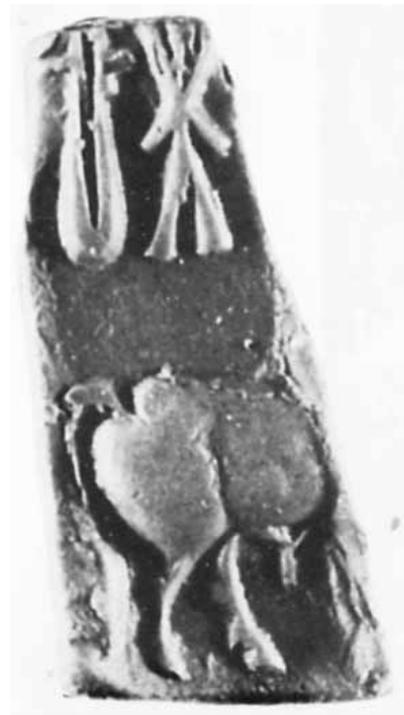
Indian expert on the Indus script. Mahadevan is quoted, without name, in Rajaram's book as a "well known 'Dravidianist'" who pointed out to him the obvious. But, Rajaram insists, a "comparison of the two creatures [unicorns and horses], especially in [the] genital area, shows this to be fallacious." Rajaram has also claimed on the Internet that the animal's "bushy tail" shows that it is a horse.

Below, on the left, we have reproduced Lyytikka's crisp photo of the original seal, compared (on the right) with the seven-decade-old photo (Mackay 453) of the impression Rajaram claims is a "horse seal." We have flipped the image of the original horizontally to simplify comparison of the seal and impression. The tail of the animal is the typical "rope" tail associated with unicorn bull seals at Mohenjo-daro (seen in more images below). It is clearly not the "bushy tail" that Rajaram imagines – although Rajaram's story is certainly a "bushy horse tale."

Checking Rajaram's claims about the "genital area," we find no genitals at all in M-772A or Mackay 453 – for the simple reason that genitals on unicorn bulls are typically located right where the seal is cracked! This is clear when we look at other unicorn seals or their impressions. One seal impression, Parpola M-1034a (on the right), has a lot in common with Rajaram's "horse seal," including the two characters on the lefthand side of the inscription. The seal is broken in a different place, wiping out the right-hand side of the inscription but leaving the genitals intact. On this seal impression we see the distinctive "unicorn" genitals, identified by the long "tuft" hanging straight down. The genitals are located where we would find them on Rajaram's "horse seal," if the latter were not broken.

Other unicorn bull seal impressions, like the one seen in Parpola M-595a (see next page), could make terrific "horse seals" if cracked in the same place. Unfortunately, Parpola M-595a is not broken, revealing the fact (true of most Harappan seals) that

As shown by their identical archaeological field numbers (DK-6664), M-772A (published in Vol. II of *Corpus of Indus Seals and Inscriptions*, 1991) is the original seal that seven decades ago created the seal impression (Mackay 453) that Rajaram claims is a 'horse seal.'



M-1034a

it represents not a real but a mythological animal. (And, of course, neither this nor any other unicorn has a bushy tail.)

A Russian Indologist, Yaroslav Vassilkov, has pointed to a suspicious detail in Rajaram's "computer enhancement" that is *not* found on any photo of the seal or impression. Just in front



M-772A (flipped horizontally)



Mackay 453



M-595a

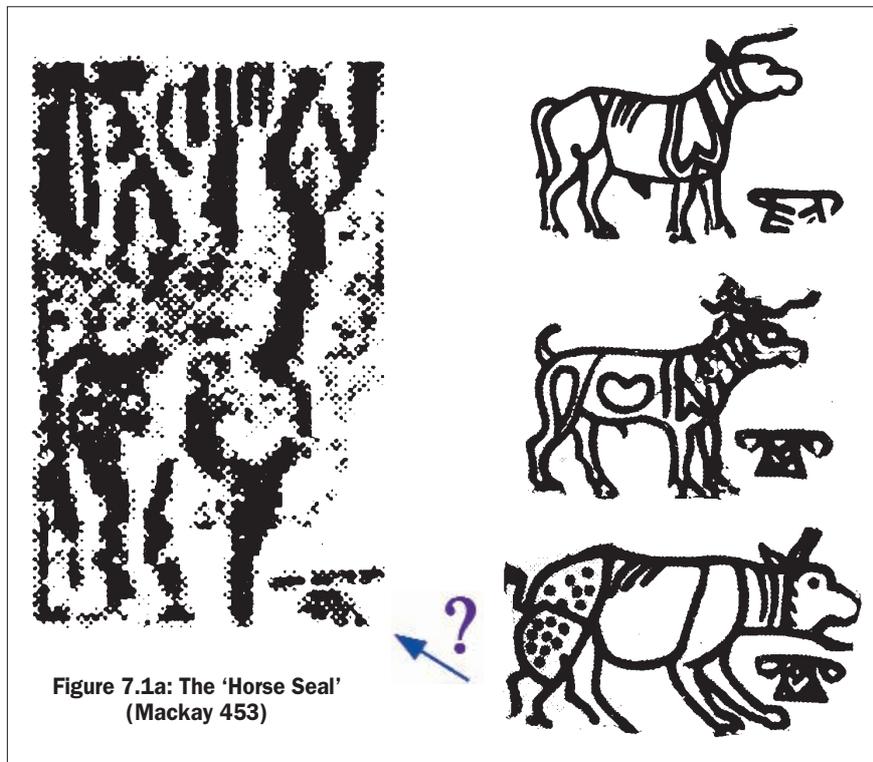


Figure 7.1a: The 'Horse Seal'
(Mackay 453)

Rajaram's 'computer enhancement' of Mackay 453 on the left; the arrow points to an object apparently stuck into the original image. On the right, pictures of Mohenjo-daro copper plates showing similar telephone-like 'feeding troughs.'

of the animal, we find a small object that looks like a partial image of a common icon in animal seals: a "feeding trough" that looks a little like an old-style telephone. Who inserted it into the distorted image of the "horse seal" is not known. Rajaram has not responded to questions about it.

Below, we show Rajaram's "computer enhancement" next to pictures of Mohenjo-daro copper plates that contain several versions of the object.

'Late Vedic' Sanskrit – 2000 Years Before Schedule

The horse seal is only one case of bogus data in Rajaram's book. Knowledge of Vedic Sanskrit is needed to uncover those involving his decipherments. That is not knowledge that Rajaram would expect in his average reader, since (despite its pretensions) the book is not aimed at scholars but at a lay Indian audience. The pretence that the book is addressed to researchers (to whom the fraud is obvious) is a smoke-screen to convince lay readers that Rajaram is a serious historical scholar.

The decipherment issue explains why Rajaram continues to defend his "horse seal" long after his own supporters have called on him to repudiate it. He has little choice, since he has permanently wedded his "Piltdown horse" to his decipherment method. The inscription over the horse, he tells us, reads (a bit ungrammatically) "*arko-hasva* or *arko ha as'va*" – "Sun indeed like the horse (sic)." The reading clearly would be pointless if the image represented a unicorn bull. Rajaram claims that there are links between this "deciphered" text and a later Vedic religious document, the *Shukla Yajurveda*. This again pushes the Rigveda, which is linguistically much earlier than that text, to an absurdly early period.

As we have seen, Rajaram claims that the language of Harappa was "late Vedic" Sanskrit. This conflicts with countless facts from archaeology, linguistics, and other fields. Indeed, "late Vedic" did not exist until some two thousand years after the start of mature Harappan culture!

Let us look at a little linguistic evidence. Some of it is a bit technical, but it is useful since it shows how dates are assigned to parts of ancient Indian history.

The Rigveda is full of descriptions of horses (*as'va*), horse races, and the

swift spoke-wheeled chariot (*ratha*). We have already seen that none of these existed anywhere in the Old World until around 2000 BCE or so. In most places, they did not appear until much later. The introduction of chariots and horses is one marker for the earliest possible dates of the Rigveda.

Linguistic evidence provides other markers. In both ancient Iran and Vedic India, the chariot is called a *ratha*, from the pre-historic (reconstructed) Indo-European word for wheel **roth*₂₀- (Latin *rota*, German *Rad*). (A chariot = “wheels,” just as in the modern slang expression “my wheels” = “my automobile.”) We also have shared Iranian and Vedic words for charioteer – the Vedic *rathesTha* or old Iranian *rathaeshtha*, meaning “standing on the chariot.” Indo-European, on the other hand – the ancestor of Vedic Sanskrit and most European languages – does not have a word for chariot. This is shown by the fact that many European languages use different words for the vehicle. In the case of Greek, for example, a chariot is *harmat(-os)*.

The implication is that the ancient Iranian and Vedic word for chariot was coined sometime around 2000 BCE – about when chariots first appeared – but before those languages split into two. A good guess is that this occurred in the steppe belt of Russia and Kazakhstan, which is where we find the first remains of chariots. That area remained Iranian-speaking well into the classical period, a fact reflected even today in northern river names – all the way from the Danube, Don, Dnyestr, Dnyep and the Ural (Rahaa = Vedic Rasaa) rivers to the Oxus (Vakhsh).

These are only a few pieces of evidence confirming what linguists have known for 150 years: that Vedic Sanskrit was not native to South Asia but an import, like closely related old Iranian. Their usual assumed origins are located in the steppe belt to the north of Iran and northwest of India.

This view is supported by recent linguistic discoveries. One is that approximately 4 per cent of the words in the Rigveda do not fit Indo-Aryan (Sanskrit) word patterns but appear to be loans from a local language in the Greater Panjab. That language is close to, but not identical with, the Munda languages of Central and East India and to Khasi in Meghalaya. A second finding pertains to shared loan words in the Rigveda and Zoroastrian texts referring to agricultural products, animals, and domestic goods that we know from archaeology first appeared in Bactria-Margiana c. 2100-1700 BCE. These include, among others, words for camel (*uSTraalushtra*), donkey (*kharalxara*), and bricks (*iSTakaal/ishthia, ishtuaa*). The evidence suggests that both the Iranians and Indo-Aryans borrowed these words when they migrated through this region towards their later homelands.⁵ A third finding relates to Indo-Aryan loan words that show up in the non-Aryan Mitanni of northern Iraq and Syria c.1400 BCE. These loan words reflect slightly older Indo-Aryan forms than those found in the Rigveda. This evidence is one reason why Indologists place the composition of the Rigveda in the last half of the second millennium.

This evidence, and much more like it, shows that the claim by Rajaram that mature Harappans spoke “late Vedic” Sanskrit – the language of the Vedic sutras (dating to the second half of the first millennium) – is off by at least two thousand years! At best, a few adventurous speakers may have existed in Harappa of some early ancestor of old Vedic Sanskrit – the much later language of the Rigveda – trickling into the Greater Panjab from migrant “Aryan” tribes. These early Indo-Aryan speakers could have mingled with others in the towns and cities of Harappan civilisation, which were conceivably just as multilingual as any modern city in India. (Indeed, Rigvedic loan words seem to suggest several substrate lan-

guages.) But to have all, or even part, of Harappans speaking “late Vedic” is patently absurd.

But this evidence pertains to what Rajaram represents as “the petty conjectural pseudo-science” called linguistics. By rejecting the science wholesale, he gives himself the freedom to invent Indian history at his whim.

Consonants Count Little, Vowels Nothing!

According to Rajaram and Jha, the Indus writing system was a proto-alphabetical system, supposedly derived from a complex (now lost) system of pre-Indus “pictorial” signs. Faced with a multitude of Harappan characters, variously numbered between 400 and 800, they select a much smaller subset of characters and read them as alphabetical signs. Their adoption of these signs follows from the alleged resemblances of these signs to characters in Brahmi, the ancestor of later Indian scripts. (This was the script adopted c. 250 BCE by Asoka, whom Jha’s 1996 book assigns to c. 1500 BCE!) Unlike Brahmi, which lets you write Indian words phonetically, the alphabet imagined by Jha and Rajaram is highly defective, made up only of consonants, a few numbers, and some special-purpose signs. The hundreds of left-over “pictorial” signs normally stand for single words. Whenever needed, however – and this goes for numbers as well – they can also be tapped for their supposed sound values, giving Rajaram and Jha extraordinary freedom in making their readings. The only true “vowel” that Jha and Rajaram allow is a single wildcard sign that stands for *any* initial vowel – as in *A-gni* or *I-ndra* – or sometimes for semi-vowels. Vowels inside words can be imagined at whim.

Vowels were lacking in some early Semitic scripts, but far fewer vowels are required in Semitic languages than in vowel-rich Indian languages like Sanskrit or Munda. In Vedic Sanskrit, any writing system lacking vowels would be so ambiguous that it would be useless. In the fictional system invented by Jha and Rajaram, for example, the supposed Indus *ka* sign can be read *kaa, ki, ku, ke, ko*, etc., or can also represent the isolated consonant *k*. A script like this opens the door to an enormous number of alternate readings.

Supposing with Jha and Rajaram that the language of Harappa was “late Vedic”, we would find that the simple two-letter inscription *mn* might be read:

mana “ornament”; *manaH* “mind” (since Rajaram lets us add the *Visarjaniya* or final *-H* at will); *manaa* “zeal” or “a weight”; *manu* “Manu”; *maana* “opinion” or “building” or “thinker”; *miina* “fish”; *miine* “in a fish”; *miinau* “two fish”; *miinaiH* “with fish”; *muni* “Muni”, “Rishi”, “ascetic”; *mRn-* “made of clay”; *menaa* “wife”; *meni* “revenge”; *mene* “he has thought”; *mauna* “silence”; and so on.

There are dozens of other possibilities. How is the poor reader, presented with our two-character seal, supposed to decide if it refers to revenge, a sage, the great Manu, a fish, or his wife? The lords of Harappa or Dholavira, instead of using the script on their seals, would have undoubtedly sent its inventor off to finish his short and nasty life in the copper mines of the Aravallis!

If all of this were not enough to drive any reader mad, Rajaram and Jha introduce a host of other devices that permit even freer readings of inscriptions. The most ridiculous involves their claim that the direction of individual inscriptions “follows no hard and fast rules.” This means that if tossing in vowels at will in our *mn* inscription does not give you the reading you want, you can restart your reading (again, with unlimited vowel wildcards) from the opposite direction – yielding further alternatives like *namaH*

⁵ For linguistic details, see M. Witzel, “Substrate Languages in Old Indo-Aryan (Rigvedic, Middle and Late Vedic),” *Electronic Journal of Vedic Sanskrit*, Vol. 5 (1999), Issue 1 (September), available in PDF format from <http://www1.shore.net/~india/ejvs/ejvs0501/ejvs0501article.pdf>. See also F. Staal in *The Book Review*, Vol. XXIV, Jan.-Feb., 2000, p.17-20.

The direction of Harappan writing

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IN their attempts to “force fit” Harappan script into Sanskrit moulds, Rajaram and his collaborator ignore many known facts about Harappan inscriptions. One of the most glaring conflicts with the evidence comes in their claim that in most cases the script is to be read from left to right, like Sanskrit.

Much evidence has accumulated over seven decades that this is the reverse of the case. Indeed, one of the few things that all Harappan researchers agree on concerns the usual right-left direction of the script. Writing direction in ancient scripts often varied in different contexts, but evidence of many sorts suggests that Harappan deviated from right-left patterns in less than seven per cent of inscriptions.

Some of this evidence arises from studies of inscriptions on pot sherds. As B.B. Lal showed in the 1960s, examination of overlapping lines on those inscriptions shows that the script was normally inscribed

from right to left. Other evidence is apparent to the untrained eye. Below, we give two examples from images in the *Corpus of Indus Seals and Inscriptions* compiled by Asko Parpola and his collaborators. The evidence in both cases has been known since the early 1930s.

One kind of evidence involves the spacing of characters. In seal impression M-66a (using Parpola’s numbers), shown below, we see one of many cases where an engraver ran out of room when engraving the seal, causing a bunching of letters on the left. In the seal, no room at all was left for the “jar sign” often found at the end of inscriptions. This forced the engraver to place it below the rest of the inscription, on the far left. Its placement would be inconceivable if the “jar sign” were a wildcard vowel beginning inscriptions, as Rajaram and Jha claim.

Other evidence shows up in Parpola’s seal H-103a, shown below. The unusually long inscription in this case runs around three sides of the seal, with the top of the symbols pointing towards the nearest edge. This suggests that the inscription was to be read by turning it around in the hand to read its three parts. Only the top side of the inscription is filled with symbols, indicating that this is the first line. The inscription was hence to be read right to left, turning it clockwise to see the rest.

Further evidence comes from studies of initial and final sign sequences, from studies of repeating sign combinations, and other data. All this evidence has been discussed by a long line of researchers stretching from G.C. Gadd in 1931 to Gregory Possehl in 1996. None of this evidence is mentioned in Jha and Rajaram’s book. ■



M-66a



H-103a

or *namo* “honour to...,” *naama* “name,” and so on.

There are other “principles” like this. A number of signs represent the *same* sound, while – conversely – the same sign can represent *different* sounds. With some 400-800 signs to choose from, this gives you unlimited creative freedom. As Rajaram puts it deadpan, Harappan is a “rough and ready script.” Principles like this “gave its scribes several ways in which to express the same sounds, and write words in different ways.” All this is stated in such a matter-of-fact and “scientific” manner that the non-specialist gets hardly a clue that he is being had.

In other words, figure out what reading you want and fill in the blanks! As Voltaire supposedly said of similar linguistic tricks: “Consonants count little, and vowels nothing.”

A little guidance on writing direction comes from the wildcard vowel sign, which Rajaram tells us usually comes at the start of inscriptions. This is “why such a large number of messages on the Indus seals have this vowel symbol as the first letter.” What Jha and Rajaram refer to as a vowel (or semi-vowel) sign is the Harappan “rimmed vessel” or U-shaped symbol. This is the most common sign in the script, occurring by some counts some 1,400 times in known texts. It is most commonly seen on the left side of inscriptions.

Back in the 1960s, B.B. Lal, former Director-General of the Archaeological Survey of India, convincingly showed, partly by

studying how overlapping characters were inscribed on pottery, that the Harappan script was normally read from right to left. Much other hard evidence confirming this view has been known since the early 1930s. This means that in the vast majority of cases the U-sign is the *last* sign of an inscription. But here, as so often elsewhere, Rajaram and Jha simply ignore well-established facts, since they are intent on reading Harappan left to right to conform to “late Vedic” Sanskrit. (In times of interpretive need, however, any direction goes – including reading inscriptions vertically or in zig-zag fashion on alternate lines.)

The remarkable flexibility of their system is summarised in statements like this:

First, if the word begins with a vowel then the genetic sign has to be given the proper vowel value. Next the intermediate consonants have to be shaped properly by assigning the correct vowel combinations. Finally, the terminal letter may also have to be modified according to context. In the last case, a missing *visarga* or *anusvaara* may have to be supplied, though this is often indicated.

How, the sceptic might ask, can you choose the *right* words from the infinite possibilities? The problem calls for a little Vedic ingenuity:

In resolving ambiguities, one is forced to fall back on one’s knowledge of the Vedic language and the liter-

ary context. For example: when the common composite letter $r + k$ is employed, the context determines if it is to be pronounced as *rka* (as in *arka*) or as *kra* as in *kruura*.

The context Rajaram wants you to use to fill in the blanks is the one that he wants to prove: any reading is proper that illustrates the (imaginary) links between “late Vedic” culture and Indus Civilisation. Once you toss in wildcard vowels, for example, any *rk* or *kr* combination provides instant Harappan horseplay – giving you a Vedic-Harappan horse (recalling their equation that *arka* “sun” = “horse”) long before the word (or animal) appeared in India.

Why did the Indus genius who invented the alphabet not include all basic vowel signs – like those in Asoka’s script – which would have made things unambiguous? It certainly could not be because of a lack of linguistic knowledge, since Rajaram claims that the Harappans had an “advanced state of knowledge of grammar, phonetics, and etymology,” just as they had modern scientific knowledge of all other kinds. But vowels, of course, would rob Rajaram of his chances to find Vedic treasure in Harappan inscriptions – where he discovers everything from horse thieves to Rigvedic kings and advanced mathematical formulae.

Peculiarly, in contrast to the lack of vowel signs, Jha and Rajaram give us a profusion of special signs that stand for fine grammatical details including word-final *-H* and *-M* (*Visarjaniya* and *Anusvaara*; if these are missing, you can just toss them in); special verb endings like *-te*; and noun endings such as *-su*. All of these are derived from Paninian grammar more than two thousand years before Panini! They even find special phonological signs for Paninian *guNa* and *vRddhi* (that is, *u* becomes *o* or *au*) and for Vedic pitch accents (*svara*).

Although the scribes lacked vowels, they thus had signs applicable only to vowel combination (*sandhi*) – which is remarkable indeed, given the absence of the vowels themselves.

A Hundred Noisy Crows

It is clear that the method of Rajaram and Jha is so flexible that you can squeeze some pseudo-Vedic reading out of any inscription. But, with all this freedom, what a motley set of readings they hand us! Moreover, few of their readings have anything to do with Harappan civilisation.

What were Indus seals used for? We know that some (a minority) were stamped on bales of merchandise; many were carried around on strings, perhaps as amulets or ID cards. Many of them were lost in the street or were thrown out as rubbish when no longer needed. Sometimes a whole set of identical inscriptions has been found tossed over Harappan embankment walls.

In their usual cavalier way, Rajaram and Jha ignore all the well-known archaeological evidence and claim that the inscriptions represent repositories of Vedic works like the ancient *Nighantu* word lists, or even the mathematical formulae of the *Shulbasutras*. The main object of Harappan seals, they tell us, was the “preservation of Vedic knowledge and related subjects.”

How many merchants in the 5000-odd year history of writing would have thought to put mathematical formulae or geometric slogans on their seals and tokens? Or who would be likely to wear slogans like the following around their necks?

“It is the rainy season”; “House in the grip of cold”; “A dog that stays home and does nothing is useless” – which Rajaram and Jha alternately read as: “There is raw meat on the face of the dog”; “Birds of the eastern country”; “One who drinks barley water”; “A hundred noisy crows”; “Mosquito”; “The breathing of an angry person”; “Rama

threatened to use agni-vaaNa (a fire missile)”; “A short tempered mother-in-law”; “Those about to kill themselves with sinfulness say”; or, best of all, the refreshingly populist: “O! Moneylender, eat (your interest)!”

By now, we expect lots of horse readings, and we are not disappointed. What use, we wonder, would the Harappans have for seal inscriptions like these?

“Water fit for drinking by horses”; “A keeper of horses (*paidva*) by name of VarSaraata”; “A horsekeeper by name of As’ra-gaura wishes to groom the horses”; “Food for the owner of two horses”; “Archi who brought under control eight loose horses”; and so on.

The most elaborate horse reading shows up in the most famous of Indus inscriptions – the giant “signboard” hung on the walls of the Harappan city of Dholavira. The “deciphered” inscription is another attack on the “no horse in Harappa” argument:

“I was a thousand times victorious over avaricious raiders desirous of my wealth of horses!”

In the end, readers of Jha and Rajaram are likely to agree with only one “deciphered” message in the whole book: *apa-yas’o ha mahaat* “A great disgrace indeed!”

Vedic Sanskrit?

Before concluding, we would like to point out that the line we just quoted contains an elementary grammatical error – a reading of *mahaat* for *mahat*. The frequency of mistakes like this says a lot about the level of Vedic knowledge (or lack thereof) of the authors. A few examples at random:

– on p. 227 of their book we find *adma* “eat!” But what form is *adma*? *admaH* “we eat? At best, *adma* “food,” not “eat!”

– on p. 235, we find *tuurNa ugra s’ vasruuH*. No feminine adjectives appear in the expression (*tuurNa*, *ugra*), as required by the angry “mother-in-law” (read: *s’vas’ruuH!*).

– on p. 230, we read *apvaa-bataa-tmaahuH*, where *bataatma* might mean “one whose self is slain,” or the “self of a slain (person),” but not “those about to kill themselves.” In the same sentence, *apvaa* does not mean “sinfulness” (which is, in any case, a non-Vedic concept) but “mortal fear.”

– on p. 232, we have *amas’aityaarpa*, supposedly meaning “House in the grip of cold.” But *ama* (apparently what they want, not *ama* “force”) is not a word for “house,” but an adverb meaning “at home.” The word *s’aitya* “cold” is not “late Vedic” but post-Vedic, making the reading even more anachronistic than the other readings in the book.

– on p. 226, we find *paidva* for “horses,” in a passage referring to horse keepers. But in Vedic literature this word does not refer to an ordinary but a mythological horse.

Many similar errors are found in the 1996 pamphlet by Jha, billed by Rajaram as “one of the world’s foremost Vedic scholars and palaeographers.”

None of those errors can be blamed on ignorant Harappan scribes.

History and Hindutva Propaganda

It might be tempting to laugh off the Indus script hoax as the harmless fantasy of an ex-engineer who pretends to be a world expert on everything from artificial intelligence to Christianity to Harappan culture.

What belies this reading is the ugly subtext of Rajaram’s message, which is aimed at millions of Indian readers. That message is anti-Muslim, anti-Christian, anti-Indological, and (despite claims to the opposite) intensely anti-scientific. Those views present twisted images of India’s past capable of inflicting severe damage in the present.

Rajaram's work is only one example of a broader reactionary trend in Indian history. Movements like this can sometimes be seen more clearly from afar than nearby, and we conclude with a few comments on it from our outside but interested perspective.

In the past few decades, a new kind of history has been propagated by a vocal group of Indian writers, few of them trained historians, who lavishly praise and support each other's works. Their aim is to rewrite Indian history from a nationalistic and religious point of view. Their writings have special appeal to a new middle class confused by modern threats to traditional values. With alarming frequency their movement is backed by powerful political forces, lending it a mask of respectability that it does not deserve.

Unquestionably, all sides of Indian history must be repeatedly re-examined. But any massive revisions must arise from the discovery of new evidence, not from desires to boost national or sectarian pride at any cost. Any new historical models must be consistent with all available data judged apart from parochial concerns.

The current "revisionist" models contradict well-known facts: they introduce horse-drawn chariots thousands of years before their invention; imagine massive lost literatures filled with "scientific" knowledge unimaginable anywhere in the ancient world; project the Rigveda into impossibly distant eras, compiled in urban or maritime settings suggested nowhere in the text; and imagine Vedic Sanskrit or even Proto Indo-European rising in the Panjab or elsewhere in northern India, ignoring 150 years of evidence fixing their origins to the northwest. Extreme "out-of-India" proponents even fanaticise an India that is the cradle of all civilisation, angrily rejecting all suggestions that peoples, languages, or technologies ever entered prehistoric India from foreign soil – as if modern concepts of "foreign" had any meaning in prehistoric times.

Ironically, many of those expressing these anti-migrational views are emigrants themselves, engineers or technocrats like N.S. Rajaram, S. Kak, and S. Kalyanaraman, who ship their ideas to India from U.S. shores. They find allies in a broader assortment of home-grown nationalists including university professors, bank employees, and politicians (S. S. Misra, S. Talageri, K.D. Sethna, S.P. Gupta, Bh. Singh, M. Shendge, Bh. Gidwani, P. Chaudhuri, A. Shourie, S.R. Goel). They have even gained a small but vocal following in the West among "New Age" writers or researchers outside mainstream scholarship, including D. Frawley, G. Feuerstein, K. Klostermaier, and K. Elst. Whole publishing firms, such as the Voice of India and Aditya Prakashan, are devoted to propagating their ideas.

There are admittedly no universal standards for rewriting history. But a few demands must be made of anyone expecting his or her scholarship to be taken seriously. A short list might include: (1) openness in the use of evidence; (2) a respect for well-established facts; (3) a willingness to confront data in all relevant fields; and (4) independence in making conclusions from religious and political agendas.

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Frontline and the authors thank Asko Parpola, Professor of Indology, University of Helsinki, Finland, for permission to reproduce the photographs of M-1034a, M-772A, M-595a, M-66a, H-103a in this article.

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N.S. Rajaram typifies the worst of the "revisionist" movement, and obviously fails on all counts. *The Deciphered Indus Script* is based on blatantly fake data (the "horse seal," the free-form "decipherments"); disregards numerous well-known facts (the dates of horses and chariots, the uses of Harappan seals, etc.); rejects evidence from whole scientific fields, including linguistics (a strange exclusion for a would-be decipherer!); and is driven by obvious religious and political motives in claiming impossible links between Harappan and Vedic cultures.

Whatever their pretensions, Hindutva propagandists like Rajaram do not belong to the realm of legitimate historical discourse. They perpetuate, in twisted half-modern ways, medieval tendencies to use every means possible to support the authority of religious texts. In the political sphere, they falsify history to bolster national pride. In the ethnic realm, they glorify one sector of India to the detriment of others.

It is the responsibility of every serious researcher to oppose these tendencies with the only sure weapon available – hard evidence. If reactionary trends in Indian history find further political support, we risk seeing violent repeats in the coming decades of the fascist extremes of the past.

The historical fantasies of writers like Rajaram must be exposed for what they are: propaganda issuing from the ugliest corners of the pre-scientific mind. The fact that many of the most unbelievable of these fantasies are the product of highly trained engineers should give Indian educational planners deep concern.

In a recent online exchange, Rajaram dismissed criticisms of his faked "horse seal" and pointed to political friends in high places, boasting that the Union government had recently "advised" the "National Book Trust to bring out my popular book, *From Sarasvati River to the Indus Script*, in English and thirteen other languages."

We fear for India and for objective scholarship. To quote Rajaram's Harappan-Vedic one last time: "A great disgrace indeed!" ■

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(*) Jagat Pati Joshi & A. Parpola, *Corpus of Indus Seals and Inscriptions 1. Collections in India*, Helsinki 1987.

(**) Sayid Ghulam Mustafa Shah & A. Parpola, *Corpus of Indus Seals and Inscriptions 2. Collections in Pakistan*, Helsinki 1991.

All other photographs are from N. Jha and N.S. Rajaram, *The Deciphered Indus Script*, cited earlier, except for the three animals on the right in the photograph on page 10, which are taken from John Marshall, *Mohenjo-Daro and the Indus Civilization*, Vol. III, plates cxvii-cxviii, London 1931.