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Agathe Keller

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## Hindu nationalism and History of Science: some reflexions

Agathe Keller, Laboratoire Sphere, ERC-SAW project, CNRS-Université Paris 7, Paris, France

*This paper derives from a presentation given in Oslo, at the Science Museum, on October 23 2013, in a workshop organised by Vidar Ennebak, as a critical stance against the exhibit «Sultans of Science» presented at the time in this museum. It is still in a draft form especially in the end, and has benefited from the critical remarks of S. Brentjes. All comments are welcome.*

This presentation intends to set the exhibit «Sultans of Science» and the opposition it has met as much in the far-right as among professional historians of science, in a wider context, by observing how Hindu nationalists have also made claims in history of science.

At the outset, I would like to underline that Hindu nationalists have long had links with the European far-right. Together they form a loose network of «fringe academics» whose relation to knowledge might be characteristic of the new forms emerging today in relation to the Internet.

Andreas Breivik- the man who on the 11th July 2011 committed a mass murder in the name of a neo-fascist ideology 's manifesto, 2083 - A European Declaration of Independence, contains a bit more than a hundred references to Hindus, denouncing notably their persecution by Muslims. If Breivik's main source seems to be the Encyclopedia Britannica, he also quotes known far right professional historians (such as the Indian medievalist K. S (Kishori Saran) Lal) or less professional ones (notably the American based S. R. Rajaram a computer scientist of Indian origin turned historian known to have photoshopped Indus seals to make bulls look like Aryan horses), web sites of all known main Hindu nationalist parties, among others. That Hindu nationalists have ties with the European far right is not new. Such links go back indeed to the late thirties of the twentieth century. Hindu nationalism itself is a catch phrase to designate the many different currents of a nebulae of conservative Hindu political groups defining the unity of India through Hinduism (which may be thought as a culture or a religion) against all the part of the Indian subcontinent's history which involves Muslims and Christians. The groups created in the 30's as theorised by Subhas Chandra Bose (1897-1945) and institutionalised by Vinayak Damodar Savarkar (1833-1966) bear the mark of their time in their will to modernise a revived and reinvented Hinduism with a mix of socialist and military ideals to create the new men and countries of the future. When Great Britain entered the war, they naturally allied with the axis: Subhas Chandra Bose, who is today hailed as the father of the Indian national army, and who had met Benito Mussolini in the 1930's, escaped from a

british jail in India to live in nazi Germany from 1941-1943 before finding help to raise an army to fight against the British in India in imperial Japan.

Breivik's Hindu nationalist references were readily remarked in India, where newspapers published some articles analyzing quite in detail Breivik's manifesto's relation to Hinduism with a tinge of irony<sup>1</sup>. These articles triggered a text published by Meera Nanda on the website of a network of women against fundamentalism<sup>2</sup>. This article outlines the circuits by which Breivik could connect with the Hindu far-right. Meera Nanda is a scholar and activist that has long targeted Hindu nationalists discourses, whether in relation to science or to the market economy<sup>3</sup>. In this article she identifies precisely and nominally, people, websites, and book publishers (notably *Voice of India*) creating a network involving the Hindu right who, in her own words makes alliances with «with Islam-bashers, anti-Christian pagans, New Age seekers, deep-ecologists/eco-feminists and other disaffected right-wingers from Europe and the US.» The actual number of people of this root network are few: Koenrad Elst, David Frawley, S. Rajaram to name a few with some in a wider circle such as Subash Kak. Among the authors quoted by Breivik is Koenrad Elst who is familiar to anybody whose indological mailing lists has been trolled by his interpretations of Indian history. This far right belgian activist publishes on «Gates of Vienna» a well known venue of the far-right created by the Norwegian blogger known under the name Fjordmann.

This criss-crossing of networks testified by common quotes, web alliances over blogs and mailing lists, ranging from India to the United States, among non-resident Indians, European and American new-agers in the space where they meet the far-right and Hindu nationalists sets the tone for what exists in History of Science.

From the beginning, Hindu Nationalists' reclaiming and re-invention of Hinduism concerned also history of science. More, I believe that the political «re-inventions» of scientific traditions of today

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<sup>1</sup> <http://www.theHindu.com/news/national/norwegian-mass-killers-manifesto-hails-Hindutva/article2293829.ece>

If Breivik considers that the Hindu nationalist fights against Muslims in India and notably in Kashmir wage a war similar to the one he would like to wage, he nonetheless in his dream of a future Europe, designates non-muslim citizens from India, Pakistan and Bangladesh as members of a servant class that could be employed for 6-12 months contracts, working 12h a day and living in segregated quarters before being shipped back home.

<sup>2</sup> <http://www.siawi.org/article3208.html>

<sup>3</sup> M. Nanda. *Prophets facing backward: postmodern critiques of science and Hindu nationalism in India*. Rutgers University Press, New Brunswick, N.J., 2003.

M. Nanda. *The God Market: How Globalization Is Making India More Hindu*. Random House, London, 2010.

have a history, which lays in the twin births of nationalism and history of science. Further these «re-inventions» share a common lists of themes that they constantly re-investigate, such as the history of the decimal place value notation or that of flying devices. It is quite surprising actually to remark the great continuity in themes and arguments. One of the characteristics of Hindu nationalists «re-inventions» is the existence of claims that do not rest on historical sources. This is the particular case of a branch of «Vedic sciences» (the Vedas which are the oldest texts known from the indian sub-continent), in which is rather pinpointed a «Vedic method» of making scientific inventions involving practices such as meditation and restrictions of the senses rather than rational investigations.

Bal Gangadhar Tilak (1856-1920) a freedom fighter often taken as one of the father's of Hindu nationalism spent the end of his life «proving» that the Hindu «Aryan» Calendar dated back to a date somewhere between 4000 and 3000 B. C. His efforts were published in *the Orion* in Bombay in 1893. Such dates for a calendar make the Indus valley the origin of all indo-european culture. They also make astral science from the Indian sub-continent the oldest possible. Such claims are still alive. Indeed they were given a new varnish a decade ago, when in 2000 the Hindu nationalist party, the BJP, came into power in the Indian federation, with the clear aim to do ago with marxist historiography and islamic terrorist ideologies together, and notably change school curriculums. This included creating new Hindu teachings of science, and writing new histories. Little actually was done by the government, but for the opening of chairs of astrology and yoga in universities; nonetheless for a couple of years «new histories of sciences» flourished.

Subhash Kak that we saw associated to Meera Nanda's drawn network is one who benefited from this opening. As Rajaram, he is a «non resident indian»- he lives in the United States- he is a computer scientist turned sometimes historian of science and indologist, and he has taken up Tilak's argument enhancing it with new age cyber ideas. Both use descriptions of stars in the vedas and couple them with medieval sanskrit astronomy's uses as time zero of its temporal cycles a date in the IIIr millena B. C. E. Both have as ultimate aim to prove that the «Greek civilisation» and notably its science were inspired by «aryan indo-european» tribes coming from the Indus valley. Subhash Kak has been published in what sometimes looks like serious scholarly enterprises, notably a series on the history of science and technology in India published by Oxford University Press.

From the point of view of the political theorists of *Hindutva* (Sanskrit term meaning «Hinduity» which is often used to talk of the Hindu right) history of science is a minor theme. It springs here

and there: when it is possible to rope in some arguments proving a degree of civilisation, rationality, intellectual or physical strength, they readily do so. The complex network of discourses on the history of science in the Indian subcontinent readily provides a quite standard list of examples. The themes range from the origin of numbers, zero and arithmetics, quantum physics in the vedas- note that this is especially popular with ISKON-, space travel technology or ayurvedic cures for cancer to name but a few. When political activists refer to these ideas what they actually do is shed light on the proliferating discourses, academic and non-academic, published or mere rumors, on the theme of Hinduism and science. As already underlined these themes all have histories linked to the birth of the history of science in the Indian subcontinent. The question of the articulation of science with both religion and the scholarly traditions of the Indian subcontinent, were indeed at the heart of these histories.

Tilak's «The Orion» was one of the first published histories of science written in English by an Indian. Others followed in attempts that have been chronicled by Dhruv Raina (and to a lesser extent by me). History of Science in India was born as a nationalist endeavor whose relation to religion was ambiguous, just as the independentist movement was. Thus the reference manual for the history of mathematics in India is still to a great extent today Datta & Singh's pre-partition «History of Hindu Mathematics» published in Lahore in 1935 and 1938. Here what is Hindu englobes all Sanskrit culture, even when the Sanskrit texts were written by non Hindus. Much of this book was devoted to prove that the decimal place value notation came from India. Viewed from scholars working on India, their book helped close a debate that had enraged many Europeans and Indians scholars during the 19th century. I have been carrying a study on the controversies on the origins of the decimal place value notation from the early 19th century to the publication of Datta and Singh's text, and have listed about a 1000 polemical publications on this theme that were published not only all over Europe but also in the United States and in India. In these controversies, if one can easily sum up ridiculous quotations made by more or less famous scholars, what is however striking is the diversity of arguments that could be exchanged, far from the caricatures we would actually be tempted to draw. Debates often originated in spurious sources: there certainly was a market for false manuscripts and copper plate engravings concerning this topic in the 19th century. To give another example, B. N. Seal in 1915 wrote a «*Positive Sciences of the Ancient Hindus* (1915)», revisited the philosophical tradition of atomism. Seal's aim, as many others in the growing burgeoning independence culture emerging in different ways in Delhi, Calcutta and Benares, was to

create a new science, which could take the best of what he fantasized was «European science» and «Hindu science». His work traveled and stupefied early 20th century theoreticians of quantum theory, who actually fed into the myth of the «east» as a place for renewal or a lost paradise.

In the 1990's Ashish Nandy a psychologist and sociologist by formation, brought to light the colonial tension between «tradition» and science, attempting to understand its historical and psychological impact on Indian scientist under colonial rule. He studied two tragic figures that of Ramanujan (who died an early sudden death) and that of Jagadis Chandra Bose (to whom it seems Marconi stole the invention of the telegraph and who seems to have been half mad at the end of his life). Ashish Nandy's analysis was often hailed as a model of new leftist post-colonial theory of history of science. And although he has been at times assaulted by tenants of Hindu nationalism, he also publicly supported the educational policy of re-Hinduisation of the BJP. His analysis rested upon the supposition that there existed something like a homogenous body of ancient Hindu science. This is an important crux that others today have already underlined. One of the key distortions of all these narratives has to do with the vision of science as homogene; homogene from science to science, homogene across language, homogene in time, in one religious category or nation. In Ashish Nandy's analysis an essentialized renewed Hinduism defines a way of doing, writing and thinking science- this is a first distortion- and second this way of doing science is essentially different from what he calls «western science» itself seen as a more or less homogenous whole.

Whether it is Ashish Nandy, a famous academic, or Subash Kak, a more fringe character in relation to academia, both use historical sources, although we could qualify their analysis as biased. But there exists also discourses whose sources are not truly historical. This is the case of Vedic Mathematics (VM).

VM was first a posthumous book published in 1968 whose author, Bharati Krishna Tirthaji, was an important Hindu religious figure, known for his links with Hindu nationalists. He was part of a network that already in the late 50's linked him, the Hindu far-right and groups in the United States, from which the transcendental meditation sect federated by the Maharishi will arrive-yes the Beatles' (and David Lynch's) guru. The book itself first became popular in these circles, is taught in Maharishi schools in England, Australia and the United States, before coming back to India. There was a missed attempt to make this book into a text-book for secondary schools during the BJP era. This book has become a long lasting best seller in India springing many off-shoot publications.

Among the many interesting features of VM, its awareness of its global nature used in selling it, its strong post colonial stands notably the will to renew the teaching in secondary schools in India to

restore the original Vedic methods, its playfulness which accounts for its popularity and may indicate its roots in popular south indian mathematical practices never accounted for in the high brow Sanskrit texts that usually serve as sources to write the history of mathematics, what will leave our attention here is the claim that it is «Vedic»: This term can be a historical claim. The guru-author does refer to a lost recension of the Veda; implying then that the mathematics of the book might be of the most ancient in the world. «Vedic» can also mean something about the method by which such mathematics were obtained. The forward of the book also specified that the mathematics found in the book were obtained- having read the lost recension- after long bouts of penances in a forest in Maharashtra. The implicit claim here then is that there is a vedic way of making scientific discoveries involving physical austerities and meditation. The derivatives of Vedic mathematics in this sense clearly play on this ambiguity: is it a historical method, a traditional Hindu method? One thing is sure, «vedic» seems associated to the kind of «super-powers», that mythological seers would have. In many circles in India, history of mathematics and «vedic mathematics» are one and same thing. If we come back to the article written by Meera Nanda after the Breivik attack, she denounces in particular how the Hindu right in the past years «has been honing its radical critique of Islam and Christianity from the perspective of ‘yogic spirituality’» with the aim of producing ‘bauddhik kshatriyas’ (intellectual warriors), who will defend Hindu society against the triple ‘threat’ of Islam, Westernisation and Marxism». Vedic mathematics then is to be understood as but one phenomena in this nebulae. Nanda has further studied how post modernist discourses could be used similarly to make claims with no historical backing: taken with a hand in the bag of fraud, the contestants just reply that what counts is the «narrative» of history, not its un-tangible reality. Vedic science is but the caricature of what actually «Hindu science» is a catch phrase that wants to grab something that does not exist: a Hindu way of doing science.

If we look at the wikipedia page on the history of numbers or more so if we take Fjordman’s point of view that religious belief determine good or bad science, and that further these religious beliefs belong to a people (nation, race...) it feels as if some battles were staging a hundred and fifty years old debates on which the light was closed long ago. Why are people still waging these battles? Were they still being fought in the dark?

Of course such phenomenas questions me as a professional historian of mathematics.

I work on Sanskrit mathematical texts from the Vth-XIIth century A.D, that I edit, translate and analyze. I would like to chance to add that the area of Islamic science (whatever this category regroups) is an understudied topic in the history of science in the Indian subcontinent. And this has no doubt a link with the stories I just told you.

Of course such debates make us reinvestigate these histories, and more often then not we come up with better more careful histories. If we take for instance the debate on the origins of the decimal place value notation, re-opening the case enables us to restate a number of conclusions with nuance, underlining how little actually can be said of the computational practices in between 500 BCE and 500 CE in the indian subcontinent, making a distingo between scholarly treatises and administrative practices of number writing, etc.

It goes without saying also that we have to publicly denounce historical frauds, drawing a clear line in between fantasies, facts and the interpretation of facts.

But being the one to eternally denounce is sometimes a trap: as an academic you appear on the scene in the traditional garb of «the one who detains the keys of knowledge», the precise garb that in most cases non-academic or fringe scholars want to denounce.

How then as academics can we react intelligently to non-academic re-uses of academic work distorted by political agendas?

My first reaction is an academic one: It seems to me that the first introspection we can make is from within academia. What are the ideologies and narratives that in history of science enables Fjordmann to write his own (quite banal often) histories: After all, what i briefly described as the birth of history of science in India is true of much of European and American history of science as well: its nationalism, and difficult relation to religion give birth to what is for me a very american paradox. Thought to be «liberal» as contextual histories will underline the hidden role of women or laboratory workers in important inventions, many publications continue to be scandalously Eurocentric, Anglo-centric manuals. In other words, it is crucial, academically that we alert our colleagues to how biased manuals are read and interpreted outside of academia. We have been doing so for years actually, but are usually just brushed aside as irevelant in most cases I have to say. And I don't know what to do about that.

But more, as underlined by Sonja Brentje's criticism of the 1001 invention's exhibit, the way we study and present our work needs also to reflect pluralism: no society, no religion practices science in a uniform way. Presenting uniform general ways of practicing science is just as dangerous. There

is no Indian scientific paradigm, no generality I can say on Indian mathematics or Hindu mathematics that cannot be countered with a counter-example.

More because historians have sought in the past common threads rather than diversity they have often produced a distorted vision of past scientific practices.

I am part of a research group, funded by the European ERC scheme- called SAW (mathematical Sciences in the Ancient World, <http://sawerc.hypotheses.org/about>). Its aim is to try to recover the diversity of mathematical practices that existed in the ancient world. If you take the case of the Indian subcontinent for instance, many of our sources are biased because they give us a brahmanic account of mathematical theory. Further they were imbedded in a culture that favored generality and uniformity, atemporality. Nonetheless with my colleagues, we are publishing articles showing how diverse at one given time Sanskrit mathematical practices could be, for very small things, like techniques used to multiply numbers, or different ways of computing interest rates. More we hope by the analysis of non sanskrit sources- which are practically untapped as for today- will uncover more diversity as well. As we know, it is all very well to publish nice academic texts, we also need to find a way to interact with «the outside world». How responsible can we be of how our work is popularized? With whom should we work to produce better blogs, exhibits etc? Listening to people in this workshop has taught me much about the diversity of dialogs between researcher, curator, associations, children and adults going to exhibits to make it all right. As a professional researcher, I certainly would have much to learn from this.

To come back to the delirious scientific claims that can be found in the deep web or to the unending debates on Wikipedia pages, we see then how these stories are neither new, nor specific to a battle between Europe and Islam. Indeed, similar stories can be told from the point of view of Congolese medical practices, Chinese logic, or the Mayan calendar. Of course the first question raised is: of what are such movements the symptom? The proliferation of narratives in history of science certainly reflects a true aspiration to re-think the relations between science and religion in a post colonial settings. More, in the case of Vedic Mathematics, for which I interviewed a certain number of promoters, I believe that we are hearing the voices of those who would never get in the textbooks. An improbable collection of people «set aside» who mostly have in common their marginality while seeking a way of becoming more central by affirming the centrality of their margins.

The «fringe» academia, the hearing of voices usually silenced, these are some of the characteristics that have also been brought to us more largely by the internet. Internet knowledge, like «Sultans of

Science» or «Vedic Mathematicis» is often in the classical tradition of compilation and re-creation. What the internet is bringing as opening to the academia is larger than these questions but here again I see it as a place of hope. Shaking the academia has good sides, maybe not be too impressed by a minority, as long as it is a minority.