

On the possible origins of the 22 sruti system of Hindu musicology

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Friends who inquire if I have any ideas on sruti origins deserve the fullest answer I can give, and new developments this week offer a tempting idea, but so strange that I warn all to believe nothing without further personal reasons; this is pure imagination. The recent posting from Jerusalem of the earliest Hebrew reference to YHWH (11th-10th c. BCE) explicitly as a serpent god is highly plausible to me, and dovetails with my current research on the book of GENESIS and my publication of Hindu cosmology in 1976 in *THE MYTH OF INVARIANCE*. See Chart 15 on p. 77 for analysis of the cosmic period of 8,640,000,000 in which straight-forward Platonic decomposition of its primes of 2, 3, and 5 expose a foundation in Sumerian base 60 arithmetic invented in the 4th millennium BCE, fully supported, I believe, by the Narmer inscriptions dated to about 3200 BCE, and discovered while working on the Hindu Rg Veda in the 1970s with Antonio de Nicolas. Here is a “cabbalist” commentary that helps a Hindu discover the 22 as provided fortuitously within the “throne of heaven” as a “sunburst” in the 8th row (the middle) from which distance a symmetric “peak” in the 15th row triggers a “spark of recognition” from the “pit” as 7th element in the first row. This is mythologized by the eagle who breaks a compact with a serpent by eating his children instead of helping to feed them, and in retaliation is “struck down”, falls into the pit, to be later rescued, fed, and taught to fly again—the next time, I suggest, in the “regularized” Babylonian base 60 “floating place value.” YHWH and Apollo are symbolized by $60^5=777,600,000$ as Hermes Trismegistus, “thrice holy” conductor of souls, as hinted by Plutarch in “The E at Delphi.” I never properly presented the new, reduced matrix in M.O.I., but the two belong together, the first and larger as “Primordial History” (i.e., a cosmic flood projected into the past, or “the Saraswati at flood stage”), and the

second, as later and reduced matrix, as “The Peaceable Kingdom” of the “present” (meaning the 2nd m. BCE, which of course proved to be a mirage). This whole fantasy is a product of the construction itself, a discovery made possible by familiarity with the Sumerian “grain pile” as “Pythagorean Ur-text” within a modest limit of only 1,152,000 as presented to the British Musieum and published in “ICONEA 2008,” accessible on the web (with sufficient patience in downloading). I may be wrong, but the story appears plausible to me.

There are 22 elements here that may indeed have inspired the notation of a “divine 22” mysteriously beyond explanation. This may be only in MY imagination in counting “baked bricks” rather oddly to 22, a number never explained (and having nothing whatever to do with $p\lambda$). So I share this new idea with friends to handle as they please, perhaps wearing “asbestos gloves” and with the “fire department” standing by. It so happens that “harmonical truth” as revealed on p. 77 in the rhombic $7 \times 7 = 49$ elements of the central throne (count upwards with me) emerge NOT by design but merely from the natural behavior of the elements as they are doubled into linear scale order in this gargantuan projection reaching a “flood” of 15 rows necessary to locate paired reciprocals between “peak” and “pit”. Every row is laid down as an exponential sequence of triples, but each row is distinguished by an new factor of 5 (working upward from the lower left cornerstone, and thus mirrored from ABOVE at the upper right). The 7 symmetries in the middle are imagined by Berossus as “fish men” or “Seven Spirits” who rise up as needed to build the walls of ancient cities, and then retire below when the task is finished, leaving a new temple in “Middle Earth”. But all this is supervised by the Sun above, who “sees everything” as he arises in the morning and moves EAST to WEST daily (read right to left). Monotheism denies this “generation from BELOW,” and invents a very different story, thus implying that the middle row belongs to Deity (as Spiral Fifths) before “splitting” himself into “waters above” vs “waters below.” Our late cabalist in the ZOHAR appears to be thinking of a rotation by 90

degrees (as in the 10 Sefirot substituted in the Middle Ages after Hebrew harmonics were forgotten during the Diaspora that Christianity imposed. But the metaphors are correct if this alteration is accepted, and the new vertical alignment actually agrees with the pattern of $3 \times 4 = 12$ precious stones on the high priest's breastplate (that once symbolized the 12 tribes in three linear rows as they travelled through the wilderness, protecting the precious Ark of the Covenant on all four sides. The central Ark is the number 360 itself (not explained here), foundation of cosmic calendars and Jewish wisdom and tonal referent in the "brick alignment" within the octave double 720:360.

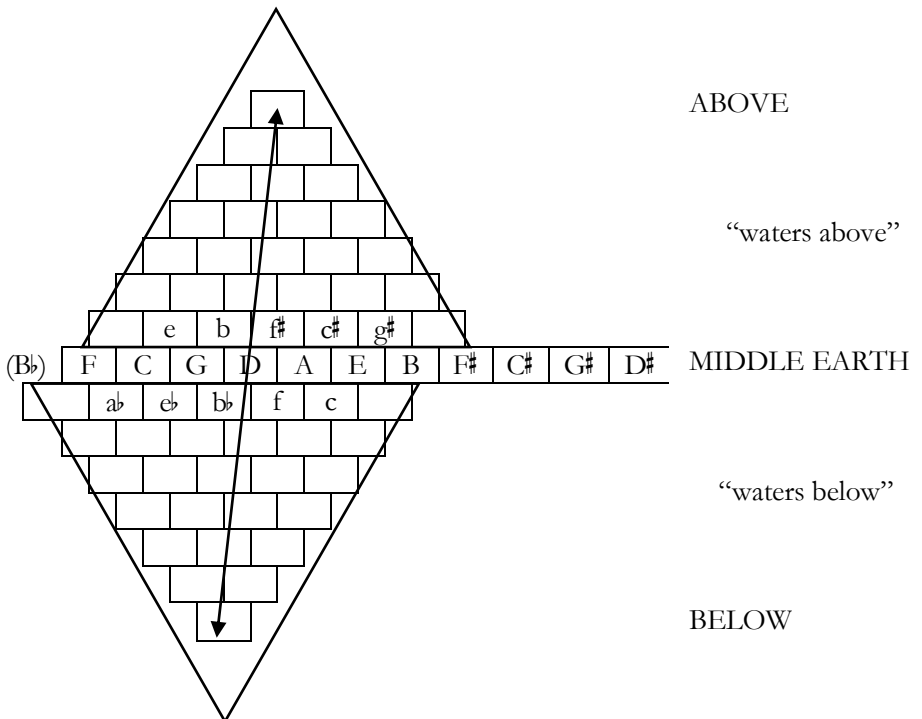
The 22 sruties as developed from early Sanskrit musicology are modeled by the Greek Dorian mode (Idelson's "mode of the Pentateuch"—Plato's Greek Dorian "true Hellenic mode"—falling or rising E d c B, A G f E (read either direction, from the left or right, as Egyptian hieroglyphs were inscribed in STONE) through two successive tetrachords that Greece considered irregular but a merciful Jewish deity found quite adequate. This "white key" falling notation is the "Just" reversal of C d e F, G A b C in my rising notation, and indifferent to reciprocation of the ratios, always assumed. Abraham's ambidexterity was a must in Plato's Greece, and double meanings inspire my change of pitch names now to expose the eleven different pitch classes that actually align themselves in central symmetry. They lie within the interlocked triangles of the "Magen David," later imposed on the Jews by Christians, and now defiantly celebrated in every synagogue. I demonstrate here how sruties FAIL to properly align in the two "Greek" tetrachords, in a very trivial manner involving 1 sruti that NEVER was tuned as an independent tone, but survived metaphysically to become the Christian "Savior" as developed first strategically in the Horus vs Seth mythology of ancient Egypt. (I suppress the Savior also here, but you can find the contradiction between $4-3=1$ and $3+1=4$ as a "comma" between wholetones of 8:9 and smaller neighbors of 9:10 that we all know from the harmonikc

series.) Hindu sruties—never intended to be strictly defined--deny any relevance to this Greek nicety that a more “arrogant” reason imposes as a “new tyranny”. I suppress the Greek arithmetic, leaving only the sruties exposed as 4 -3 -2 in one tetrachord but as 3 - 4 -2 in the other. Very close “laboratory” attention is required to make this difference noticeable, and merciful deities did not require it of disciplined believers. (I could have exhibited the rising pattern instead as D E f# G , followed by A b c# D), also using the same case for wholetones of 4 sruties vs those of only 3. This trivia can quickly inflame instrumental performers’ passion. But “Philosophy” must be allowed its own dignity.

1 st tetrachord				2 nd tetrachord			
4	3	2	4	4	3	2	
D	C	b	A	G	F	e	D
D	C	b	A	G	f	e	D
4	3	2	4	3	4	2	
1 st tetrachord				2 nd tetrachord			

In the “flood” matrix for 8,640,000,000 “peak and pit” demonstrate a predictable logic of “triangular seven” elements—but Above and Below “mate” only via an eighth row in the middle that requires and enjoys a length of eight bricks if you count them closely. Rectangular bricks must be offset for structural stability, as any child quickly learns in playing with blocks, and in a Hindu musicology that avoids a delusive pitch vibrato, the trivial difference notated here can become noticeable melodically (because the performance is normally against a continuing drone that alerts attention to slight changes). These foundational elements emerge as the “Great Serpent” of Babylon (Tiamat, dragon of the sea) as a chain of 21 elements in Spiral 5ths tuning (see Chart 15) and she is sliced lengthwise “like fish for drying” by Marduk to become ABOVE and BELOW in his new cosmology with Babylon as world center, where he keeps a seven-headed dragon as favorite composite animal. *Any* seven consecutive tones in Spiral

5ths suffice for the seven diatonic tones of a heptatonic musicology (defining 7 consecutive “white key” modes on modern keyboard instruments). But in biblical creationism the “waters” themselves are divided into Above and Below and a new set of diatonic “Just” modes can be assembled from two neighboring rows; and related “chromatic” and “enharmonic” genera allow some selections from all three consecutive rows (but no more, because “sins of the fathers” accumulate to the 3rd and 4th generations). A fixed 12-tone Western Triadic tuning requires compromises unacceptable in traditional Indian melody. The 42 gods in the Pyramid texts of Egypt--neatly seated on opposite sides of the great Hall of Double Truth emerged from TIAMAT, no matter what culture first developed this universal serpent imagery that smiles on our rising/falling musical 5ths and 4ths. The RG VEDA remembers Martanda, the Sun (“D” here) as “eighth son of Aditi” and “He” can be counted as 8th “from the East in this schema abstracted from Chart 15.



The vertical arrows point to a near coincidence in rational approximations to the square root of 2 that command the central position at 6:00 o'clock in a "tone-circle." They "short-circuit" as a flash of lighting at a distance of about one-quarter of a comma, roughly $\frac{1}{4} \times 80/81$ as computed in base 60 arithmetic.

Harmonic "lawfulness" is predictable only *within* triangles and this pair is made "disjunct" by the length of "one brick" in the row between them. Given the numerical superstition of the ancients (only the number of events was *knowable*), I suggest that 22 mysterious and divine elements could have been inspired by the three central rows of this Vedic construction as seen here in $7+8+7=22$ bricks. Hindu imagination re-designed ancient Sumerian bricks to form an elaborate fire altar in the actual shape of a giant bird, and Indian genius has been unsurpassable in protecting its own heritage.

India mythologized this matrix as cycles of Kalpa and Brahma, and later, during the 1st m. CE, expanded the matrix until it was 21 rows high (where it becomes 21 broad) and with 30 elements in breadth ABOVE and BELOW (see Chart 18a on p. 88). "Peak and pit then lay opposite between 1st and 21st rows so that a pattern of "triangular 10" (=55) emerges as perfectly RECONCILED by the central eleven to present us with $55+11+55=120$ paired symmetries around a self-symmetric sun. The peak is now $5^{20} = 95,367,431,640,625$. The pit is $3^{10} = 59,049$ doubled 23 times ($\times 8,388,608$) into 81,920,000,000,000 within the 15-digit limit of $2^{16} \times 3^5 \times 5^{10} = 155,520,000,000,000$. This matrix is paired (by Alain Danielou, my source) with an equal time of absolute silence) as "Duration of the Universe" before its cycles recommence.

It seems only fair to cite here the RG VEDA verses that encouraged this arithmetical analysis in 1976 (but not digitalized this far, made easier now by our computers). The following lines are copied from M.O.I. pp. 80-81.

A possible allusion to the Kalpa number (8,640,000,000) can be heard in verses 2 and 3 of hymn 4.58:

So let the Brahmān hear the praise we utter.
This hath the four-horned Buffalo emitted.

Four are his horns, three are the feet that
bear him; his heads are two, his hands
are seven in number.

Bound with a triple bond the Steer roars loudly:
the mighty God hath entered in to mortals.

My interpretation suggests that some kind of “place marker” must have been available to the Hindus as early as the composition of this verse :

4	“horns”	
3	“feet”	
2	“heads”	
<hr style="width: 100%; border: 0.5px solid black;"/>		
	0000000	“hands” (
	= 10 ⁷ “fingers”)	
	4,320,000,000	“years” in Kalpa

The Brahmā number (as its double) can also be found in “poetic” form if it is legitimate to use some imagination:

Horses of dusky colour stood beside me,
ten chariots, Svanaya's gift, with mares
to draw them.

Kine Numbering sixty thousand followed after.
Kaksivān gained them when the days were closing.

Forty bay horses of the ten cars' master
before a thousand lead the long procession.

An earlier gift for you have I accepted
eight cows, good milkers, and three
harnessed horses.

(1.126.35)

8	"cows, good milkers"
60000	"kine"
40	"bay horses"
000000000	"chariots"
<hr/>	
8,640,000,000	"days and nights in the life of Brahmā"

These are Griffith's translations from Sanskrit that I now believe must be treated seriously as displaying Vedic familiarity at an early period before appropriate arithmetical terms had been invented. This ten digit number could have been written easily in Egyptian as "twelve millions of years" meaning 12,000,000 x 720 "days plus nights."

I now submit this first draft to my musicological colleagues and Indian friends for their study, both here and in abroad. My work is a collation from a considerable number of sources, and owes very much to dialogues with newer friends who must be recognized when this is published. The new sruti suggestions here are entirely my own and require careful review. Today's effort is prompted by a new reading of

the opening pages of the ZOHAR regarding the creation epic of GENESIS, composed a by a 13th century CE cabalist with an inflamed fervor for the radiance of the Bible, and with astute insights that I do not recall from a first reading 50 years ago. My new ideas are owed to extensive collaborations with new friends, and their names must be mentioned if this new idea seems worth publishing. I could add the “Sumerian grain pile” and the larger Hindu “cosmos” if they prove of interest.

Addenda

It is entirely typical of my wretched working habits that I forget the inspiring idea before I finish. This addition is from p.70 of the Sperling and Simon translation of the ZOHAR (Soncino press, 1984) where Moses de Leon is describing the splitting of a pre-existent light of “seven letters of the alphabet, which did not solidify and remained fluid. Afterwards Darkness issued, and there issued in it seven other letters of the alphabet, and they too were not solidified and remained fluid. There then issued the Firmament, which prevented discord between the two sides. In it there issued eight other letters, making twenty-two in all. Seven letters jumped from one side and seven from the other, and all were given in this Firmament, where they remained for a time fluid. When the firmament solidified, the letters were also solidified, and took material shape. Thus there were was given there the Torah to shine abroad.

This could survive only as an explicit memory of the ancient matrix. It has nothing to do with the later Ten Sefirot except its new vertical alignment. ENJOY! Ernest (I finally got control of formatting.)