

# SOME IMPORTANT CYCLES: Worked (for useful interpretation) with

(REFERS to Home Page: <http://www.brijvij.com>) and [http://www.brijvij.com/bb1920\\_caL-harappa.pdf](http://www.brijvij.com/bb1920_caL-harappa.pdf))

## Lunar-Tithi =(235 Lunation/6932 ½ T) days 19-year Harappan Cycle

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YEAR	No. of Days	Lunation	Weeks ±1d	Mean Year(Days)	Mean Lunation(Days)	Distribution: Cycles 11,15,19,33-yrs)	No. of TITHI's	REMARK
11-Yrs	4017.664086	136.050931	574W+0d	365.2727273	29.5441176471	136 lunation	4013 ½	[Lunation =29½ T]
15-Yrs	5478.632845	185.523996	783W-2d	365.2666667	29.5363881402	185 ½ lunation	5473	
19-Yrs	6939.601604	234.997062	991W+3d	365.2631579	29.531914894	(5*47) Lunation	6932 ½	Harappan Lnr-TithiCycle
28-Yrs	10226.781311	346.31146	1461W+0d	365.25	29.55780346821	4*7	10216	
33-Yrs	12052.992259	408.152792	1722W-1d	365.24242424	29.54166666667	3*11	12040 ½	Solar Cycle of 12-53 days
100-Yrs	36524.218967	1236.82664	5218W-2d	365.24	29.5501618123	[(2*19)+1]+(2*11)+ (2*19)+1]	36486 ½	MY =365+97/400 =365.2425 days
128-Yrs	46751.000278	1583.1381	6679W-2d	365.2421875	29.53316487682	(5*19)+33	46702 ½	MY=(365+31/128) days
293-Yrs	107015.96157	3623.902058	15288W+0d	365.24232082	29.5298013245	(231+62)-yr; {(7*33) + [(19+1+11)+(19+1+11)]}	106905	293 solar years =294 Sidereal Years.
315-Yrs	115051.28975	3896.003919	16436W-1d	365.24444444	29.53080082135	21*15-yrs and (8*19)+11+(8*19)	114932	Larger cycles of 293-yrs; 315-yrs; 334-yrs & 391- yrs can be made from smaller cycles of 11, 19 & 33-years.
334-Yrs	121990.89135	4131.000981	17427W+2d	365.24251497	29.53062212539	[(9*19)+11+(8*19)	121864 ½	
391-Yrs	142809.69616	4835.992167	20401W+3d	365.24296675	29.5306038048	(20*19)+11 & (2*128)+(3*33)+2*19)	142662	
399-Yrs	145731.63368	4934.938298	20819W-1½d	365.243107769	29.5304964539	(21*19) & (2*128)+(3*33)+(4*11)	145582 ½	Unique cycle: 9*1730-yrs =(30*399)+(9*400)-years
417-Yrs	152305.9931	5157.56709	21758W+0d	365.24220624	29.53097430926	{[(9*19+33)+9+(9*19+ 33)] & (128*3)+33	152148	Half of 834-year cycle
429-Yrs*	156688.89937	5305.98629	22384W+0d	365.24242424	29.5305314738	(39*11)	156527	13*33
462-Yrs*	168741.89163	5714.13908	24106W+0d	365.24242424	29.53132656633	(3*128)+1+(7*11)	168567	(11*33)+(9*11)
627-Yrs*	229006.85292	7754.90304	32715W+2d	365.24242424	29.53023855577	(4*128)+1+(6*19)	228770	33*19 & 57*11
649-Yrs	237042.1811	8027.0049	33863W+1d	365.24191063	29.5305842781	(4*128)+(2*19)+(11*9)	236797	59*11
660-Yrs*	241059.8452	8163.05583	34437W+0d	365.24242424	29.53080975132	(19*16)+33+(17*19)	240810 ½	(20*33) & (60*11)
834-Yrs	304611.9862	10315.1342	43516W+0d	365.24220624	29.53097430926	[(128*3)+33]+[(128*3)+ 33]	304297	MY=[(52+1/6+9/834)] day
896-Yrs	327257.00194	11081.9667	46751W+0d	365.2421875	29.53049990976	[2*417]+62&[47*19+3]	326918	MY=[7*(52+159/896) days
1008-Yrs	368164.12719	12467.2125	52595W-1d	365.24206349	29.53108205663	(7*128)+(3*19)+11*5)	367783	
1730-years	631868.98813	21397.100891	90267W	365.242196532	29.53059059405	(13*128)+(6*11)	631214 ½	1730-yrs=896-yrs+834-yrs
15570-yrs	5686820.89316	192573.90802	812403W	365.242196532	29.53057525938	This is 9*1730-yrs.	568930	One lunar month adjusted
3234-Yrs	1181193.2414	39998.9736	168742W1d	365.24242424	29.5305883	(3*896)+(3*128)+19+ (13*11)	1179970 ½	
4491-Yrs	1640302.6738	55545.8955	234329W+d	365.2422623	29.53106490233	[(5*834)+(14*19)+(5*11)	1638605	(5*7*128)+11-years
8019-Yrs	2928877.119	99181.12432	418411W+d	365.24217483	29.53062582551	(61*128)+2+(11*19)	2925845	33*27*9=8019-years

8910-Yrs	3254307.9099	110201.254	464901W+d	365.24219978	29.53065761654	(69*128)+2+(4*19)	3250939	33*27*10=8910-years
9405-Yrs	3435102.794	116323.546	490729W+d	365.24221159	29.5306021569	(10*896)+(12*33)+11+(2*19)	3431547	15*19*33=9405-years

During use of 896-Years Cycle (Div.6 Plan), In addition to Div.six(6) Leap Weeks, following Keplers Leap Weeks are ADDED every896-year cycle. First KLWk is added during 87<sup>th</sup>-year, while rest nine are added ONCE every 90-years and then repeating every 896-year cycle ; to give Mean Year of  $7*(52+159/896) = 365.2421875$  days.

1920 to 2816 AD	2007	2097	2187	2277	2367	2457	2547	2637	2727	2816
2817 to 3712 AD	2903	2993	3083	3173	3263	3353	3443	3533	3623	3712
3713 to 4608 AD	3799	3889	3979	4069	4159	4249	4339	4429	4519	4608

. Era Start at:  $\{[(Y2000 - 80) = 1920 \text{ AD} \pm 128] \div 128\}$  fixes 'Year ZERO' anomaly.

ONE Tithi = 1.0010362694300518134715025906736 day

One Year = 364.8640899974120082815734989648 Tithi

During use of 834-Years Cycle (Div.6 Plan), In addition to Div.six(6) Leap Weeks, following Keplers Leap Weeks are ADDED every834-year cycle. First KLWk is added during 81<sup>st</sup>-year, while remaining EIGHT(8) are added ONCE every 84-years and then repeating every 834-year cycle ; to give Mean Year of  $7*(52+1/6+9/834) = 365.242206235012$  days. Era Start at:  $\{[(Y2000 - 80) = 1920 \text{ AD CE}]\}$

1920 to 2754 AD	2001	2085	2169	2253	2337	2421	2505	2589	2673
2755 to 3588 AD	2835	2919	3003	3087	3171	3255	3339	3423	3507
3589 to 4422 AD	3669	3753	3837	3921	4005	4089	4173	4257	4341

SIGNIFICANCE of my 19-Year Lunar-Tithi cycle & 33-Year Solar cycle: "My working of 19-year Metonic cycle using  $5*47=235$  lunation results in exact fit, and can avoid use of inter-calary lunation to merge with 33-year 'solar cycle' as  $(47,47,47,47,16)+(47,47,47,47,16) = 408$  lunation. Also, 33-year (12053 days) solar cycle, with solar motion of 0.98564672695594-degree per day, make interesting link, with 408 lunation if we resort to 19-yrs/235 lunation as:  $12x(33+1) = 12*34 = 408$  lunation i.e.  $(33+A)+(33+1)+(33+1)+(33+1)+(33+1)+(33+1)+(A+33)+(33+1)+(33+1)+(33+1)+(33+1)+(33+A)$ ".

9405-years = [495 cycles of 19-yrs; 285 cycles of 33-yrs & 627 cycles of 15-yrs];  $[(11*834)+(7*33) \text{ yrs}]$  and  $[(10*896)+16+(13*33) \text{ yrs}]$ .

Era cycle of 7980-years =  $[(20*400) - 20] \text{ yrs. i.e. } (399x20)\text{-years; also } 15570\text{-years} = (7980+9+(19*399)\text{-years} \& (1730*9)\text{-years} = [(30*399)+(9*400)] \text{-years.}$

896-years =  $[417+62+417] \text{ years} = [(16*19)+1+(15*19)+1+(16*19)+1] = [(13*33)+19]+[19+(13*33)]\text{-years}$

834-years =  $[(21*19)+1+33]+1+[(21*19)+1] \text{ yrs or } (25*33+9) \text{ years and } (55*15+9) \text{ years;}$

Lunation per YEAR = 12.368266410797008419013640385317 ONE Tithi =  $2Ln/59^{\text{th}} = 138\text{Week}/965 \text{ day} = 235 \text{ Lunation}/6932.5$

ALL these are in close range of – ONE tithi = Lunar Month/ $29\frac{1}{2} = 1.0010369088$  13559 day and Lunar Year = 354.00 TITHI [354.36706572 days]

1-year = 365.2421875 days = 364.86385695097840029172926722604 Tithi.

834-years =  $0^{\text{d}}.0000188618*10315 = 0.19462342 \text{ T; } 896\text{-years} = 0.0000188618*46751 = 0.882097868 \text{ T}$

128-yrs =  $(5*19)+33$ ; 231-yrs =  $7*33$ ; 62-years =  $[(19+11+1)+(19+11+1)]$  293-years =  $(231+62)\text{-yrs} \& \{(7*33) + [(19+11+1)+(19+11+1)]\}$

417-years =  $(128*3)+33 \& [(9*19+33)+9+(9*19+33)]$ ; 834-Yrs =  $[2*417 = 2*((21*19)+3+33)]$ ; Also, 834-yrs =  $[(128*3)+33]+[(128*3)+33]$

896-yrs =  $834+62 \text{ years} = (2*417)+[(19+11+1)+(19+11+1)]$  Also, 896-yrs =  $[(16*19)+1]+[(15*19)+1]+[(16*19)+1]$ .

NOTE: Combining (896+834)-years is 1730-yrs =  $[(4*399)+(3*19)+(7*11)]\text{-years}$  AND, also  $(13*128)+(6*11)\text{-years}$

4491-years =  $(5*896)+11\text{-years; } (5*834)+[6*19+8]+1+6*19+8\text{-years}$  and  $[(5*834)+(14*19)+(5*11)]\text{-years}$

More Primary cycles:

(a) [2502-yrs =  $3*834\text{-yrs}$ ]; (b) 231-years =  $7*33\text{-yrs}$ ; (c) 315-years =  $21*15\text{-yrs} \& (8*19)+11+(8*19)\text{-yrs}$  (d) 334-years =  $[(9*19)+11+(8*19)]$

(b) This may be seen from above that ANY cycle could be built from smaller cycles; and further extended to use a 128-year, 896-year and/or 834-year BLOCKS, using my base cycles of 19-years, 33-years, 128-years, 834-years and 896-years to form the basis of SAROS/Era cycles.

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