ECLIPSE CYCLES by Kenneth C. Herrmann April 25, 1966

Point of Reference	Term	Decimal Length	Determines
January 1	Julian Calendar year	365.2500000	Julian New Year
Equinox(precession westward 50" per year)	Tropical Year	365.2421988	Return of Seasons
Node(westward precession 18° per year)	Eclipse Year	346.620031	Arrival of 37 day "Eclipse Season"
Sun (1° eastward a day)	Synodic Month	29.530588	"New Moon" or molad
Perigee(1/150" east a day)	Anomalistic Month	27.554550	Apparent diameter of moon

19 YEAR, SAROS and STONEHENGE ECLIPSE CYCLES

				Shortest Cycle		
'19 year	235	Synodic Months	6939.688180 days	47 Synodic Months	1387.93764
Lunar	20	Eclipse Years	6932.40	4 Eclipse Years	1386.48012
Cycle	19	Tropical Years	6939.601772	3.8 Tropical years(approx.)	

18 year	223	Synodic Months	6585.32 days	(or 12 Synodic Months shorter
11 day	19	Eclipse Years	6585.78	than the Sacred Calendar)
Saros	239	Anomalistic Months	6585.53745	
Cycle	18	(365 dy,yrs.)+15	6585.	

56 year	470	Synodic Months	13,879.3764 days	Two 19 year + 1 Saros cycle
(-4 days)	+223	Synodic Months	+ 6,585.32	
Stone-	693		20,464.6964	
henge				
cycle	- 1/2 Synodic Month		- 14.76294	- 1/2 Synodic Month
	692.5 Synodic Months		20,449.93346 days	

59 Eclipse Years	20,450.5812	(20 + 20 + 19)
56 Tropical Years	20,453.5531328	(19 + 19 + 18)
56 Julian Calendar Years	20,454.0000000	(365 1/4 times 56)
55.83 Tropical Years equals	20,391.462 days	(18.61 times 3)
55.83 Tropical Years equals 3 revolutions of the Moon's Nodes		

Comparing the 692.5 Synodic Months with the 59 Eclipse Years, a difference of about .65 of a day occurs over the period insuring a long sequence of eclipses. Comparing with the 56 Tropical Years the difference will cause the eclipses to be 3.6 days early in the year and 3 days early in the 37 day eclipse season over the period. The .5 of a Synodic Month means solar and lunar eclipses will alternate. Comparing with the Julian Calendar the 692.5 Synodic Months show a difference of over 4 days causing the eclipses to retreat 4 and sometimes 5 days in the Julian Calendar, (which itself beeing too long progresses forward in the seasons).

Eclipse of	Date B.C.	Julian Month & Day		Julian Day		
Sun	1557 B.C.	III	19	1,152,441		Julian Days are
	+ 56		-5	+ 20,451		reckoned consecu-
Moon	1501	III	14	1,172,890		tively from Jan. 1,
	56		-4	+ 20,450		4713 B.C., an
Sun	1445	III	10	1,193,340		arbitrarilly chosen
	+ 56		-4	+ 20,450		date; parts of days
Moon	1389	III	6	1,213,790		are expressed as
	+ 56		-5	+ 20,450		decimals; Jan. 1,
Sun	1333	III	1 (?)	1,234,240		1950 is Julian day
	56		-4	+ 20,450		2,432,282.
Moon	1277 B.C.	II	26	1,254,690		

SOLAR-LUNAR CYCLES

A number of celestial cycles can be interrelated and thus remembered more easily. An * indicates eclipse cycles.

	Tropical Years	Synodic Mos.	One Day Error In x Years
Short cycle	3.8	47*	
	x 5	x 5	
Metonic	19	235	(12 months more than the Saros*)
			220 years
	x 4	x 4	
Calippic	76	940	(1 month more than a 939 eclipse cycle*)
			308 years
	(19) x 121	(235) x 121	
	2299	28,435	(divisible by 5 for a 459.8 yr. eclipse cycle*
	+ 1	+ 12	
Daniel	2300	28,447	(1 month more than a Saros-type cycle*)
			1/17 error of Calippic
de Cheseaux	315	3,896	1/10 error of Metonic
	x 4	x 4	
Daniel	- 1260	- 15,584	
de Cheseaux	1040	12,863	15,056 years
	- 19	- 235	
Nicklin	1021	12,628	59,412 years
		27,600	(2300 lunar years, 12 months each
		+ 15,120	+1260 lunar years
		42,720	3560 lunar years)
		÷ 2	
Dawson	1727	21,360	(1780 lunar years, arithmetic mean)
			19,960 years
	- 19	- 235	
Nicklin	1708	21,125	97,823,000 years

Julian calendar	(accuracy,	1 day in 128 years)
Gregorian calendar	("	1 day in 3,320 years)
Omar's calculation	("	1 day in 5,000 years)
Mohammedan calendar	("	1 day in 2,478 years)

HEBREW, COLIGNY AND VENUS CYCLES

HEBREW CALENDAR INTERCALATING A 13TH MONTH EVERY 2 OR 3 YEARS			COLIGNY CALENDAR INTERCALATING A 13TH MONTH EVERY 2½ OR 3 YEARS				VENUS
	37	3		2½	31		1 2
99 MONTHS	37 M.	3 YRS.	8	3	37	99	3 4
	25	2		2½	31		5
19	37	3		2½	31		1
99	37	3 8	8	3	37	99	2 3
	25	2 *	*	2½	31	*2 1	4 5
19 37	37	3 *8	8*	3	37	37 *4	3
	37	3 *	*	2½	31	* 5	1 2
99	37	3 8	8	3	37	99	3 4
19	25	2		2½	31		5
	37	3		2½	31		1
99	37	3 8	8 YEARS, 3 YRS. 37 M.		99 MONTHS		2 3
	25	2		2½	31		4 5

EACH SEGMENT OF 19 YEARS HAS 235 SYNODIC MONTHS. EACH SEGMENT OF
8 YEARS HAS 99 SYNODIC MONTHS OR 107 SIDEREAL MONTHS, OR 5 SYNODIC
PERIODS OF VENUS (BAAL) OR 13 SIDEREAL PERIODS OF VENUS. THE 8-YEAR
CYCLE WOULD ALLOW RELIGIOUS LEADERS TO PREDICT THE LOCATION OF VENUS
AS EVENING AND MORNING STAR, WHILE THE LUNAR-SOLAR CALENDAR WOULD
PREDICT THE PHASES OF THE MOON AND SEASONS OF THE TROPICAL YEAR. THE
LOCATION OF THE MOON IN THE BACKGROUND OF STARS WOULD BE PREDICTED BY
THE 107 SIDEREAL MONTHS IN AN 8 YEAR PERIOD, THE LOCATION OF VENUS BY
THE 13 SIDEREAL PERIODS IN THAT TIME. IT IS EASY TO SEE HOW THE WOR-
SHIP OF VENUS (BAAL) COULD HAVE BEEN REPEATEDLY INTRODUCED INTO THE
AFFAIRS OF A PEOPLE OBSERVING A LUNAR-SOLAR CALENDAR.

KENNETH C. HERRMANN
JANUARY 7, 1977

AMBASSADOR COLLEGE

BIG SANDY, TEXAS 75755

HERBERT W. ARMSTRONG, *Chairman*

January 7, 1975

Dear Dr. Hoeh,

Let me put this eight-year calendar cycle from pages 90,1 of The Celts , Emergence of Man series in better order than my December 22 letter.   It is called the Coligny calendar and inserted the intercalary month at 2 1/2 and 3 year intervals, presumably inserting prior to Nisan and prior to Tishri if a Hebrew type calendar is followed.
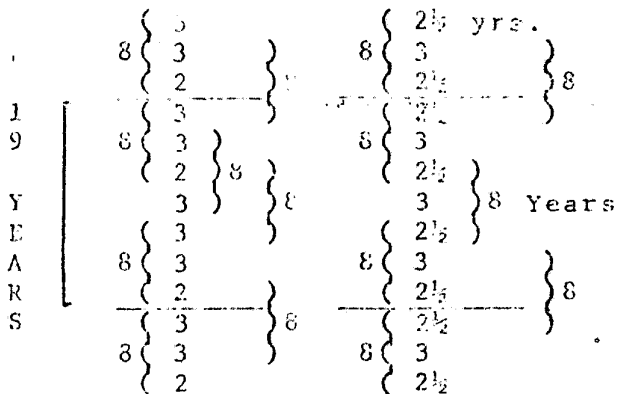
Hebrew   Coligny
              (Supposed sequence)

Each unit of 2½ or 3 years is followed by an intercalary month. Each unit of 8 years contains (8 x 12) + 3 = 99 months.

Each unit of 19 years contains 235 months, (19 x 12) + 7 = 235.

Each unit of 8 years also contains 13 sidereal periods of Venus or 5 synodic periods of Venus.

General figures would be as follow

99 x 29.5	=	2920.5
8 x 365	=	2920
8 x 365¼	=	2922
5 x 584	=	2920
13 x 225	=	2925

More exact figures would be:

99 x 29.530588	=	2923.528312
8 x 365.2422	=	2921.9376
8 x 365.25636*	=	2922.05088
5 x 583.92	=	2919.6
13 x 224.701	=	2921.113
		*Sidereal year
107 x 27.32166**	=	2923.4162
		**Sidereal month

It is easy to see how the worship of Venus (Baal) could have been interwoven with the practices of a people observing a lunar-solar calendar.

The supposed sequence of intercalary months for the Coligny calendar would allow less drift of the spring and fall festivals in the tropical year, and thus would be more practical in the northern climates where the growing season is considerably shorter.

The 8-year cycle would allow religious leaders to predict the location of Venus, while the lunar-solar calendar would predict the phases of the moon and the season in the tropical year.

Sincerely,

Kenneth C. Herrmann

THE PLANETARY WEEK

		FRENCH	GERMAN	ENGLISH
Sunday	Sun	Dimanche – Lord	SONNTAG	Satan
Monday	Moon	Lundi	MONTAG	Cush
Tuesday	Mars	Mardi	DIENSTAG	Assyr
Wednesday	Mercury	Mercredi	~~WODEN~~	Ham
Thursday	Jupiter	Jeudi	~~THOR~~	Tammuz (Thoros)
Friday	Venus	Vendredi	~~FRIGA~~	Ishtar
Saturday	Saturn	Samedi	Sam~~~~	Nimrod

1. (Satan) Sun — Lightbringer
2. (Semter) Venus — Most beautiful planet
3. (Ham) Mercury — Messenger
4. (Cush) Moon — Silver (changing colors)—Fades into obscurity—Ishtar puts him away for Nimrod
5. (Nimrod) Saturn — Cain (Seed)—"The Promised Seed"—False Christ.
6. (Tammuz) Jupiter — Closest— Child (Mother & Child) Always closer
7. (Assyr) Mars — Assyr or Astyr, Tyr (reddish & warlike)— God of War, beginning of Assyrian empire. "TYR" eventually became "TUE", hence, Tues-day.

THE PLANET "GOD" WORSHIPING ORDER

Each deified individual was worshiped on different hours of each day, as told by telling temple bells figured by mathematics as follows: beginning with one hour, divided by seven (number of gods), the number left over represents the "god" to be worshiped the first hour. Then the one is added to following 24 hours, making 25 to be divided by seven, number left over being 4, meaning god #4, or Mars (Tuesday), is worshipped second, etc, etc.

2/1	#1	Sun	Sunday (Satan)
2/	#4	Moon	Monday (Cush)
2/	#7	Mars	Tuesday (Assyr)
2/	#5	Mercury	Wednesday (Ham)
2/	#3	Jupiter	Thursday (Tammuz)
/	#2	Venus	Friday (Ishtar)
2/	#5	Saturn	Saturday (Nimrod)