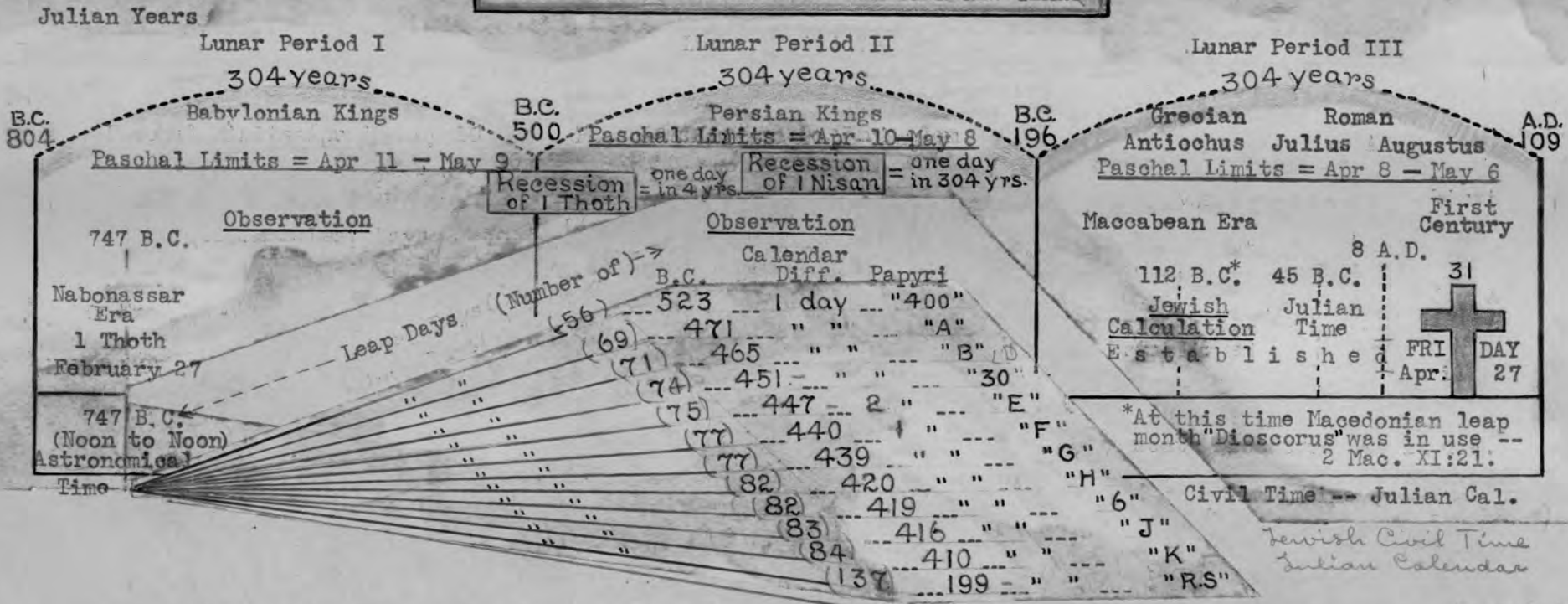


RECESSION OF ARAMAIC AND EGYPTIAN NEW YEARS



The calendar represented by the Aramaic dates of the papyri here listed fully conforms to the calendar <sup>principles</sup> underlying the crucifixion date, with the exception that the papyri dates, on account of irregular intercalation, would seem to represent observation alone, while the crucifixion calendar gives evidence of both observation and calculation. This reform in luni-solar computation was brought about in the Maccabean era, 200 years after the time of Alexander, when mathematicians taught the Jews how to calculate the conjunctions and appearance of the new moons (Albîrûnî, "Chronology of Ancient Nations," p. 68. Tr. by Sachau). In the solution of these Aramaic dates, there have been employed the following <sup>features</sup> principles of luni-solar time:

1. Jewish day calendar-dated by <sup>its</sup> second civil date.
2. Passover following Jewish full moon day in Jerusalem.
3. Passover limits (April 8 to May 6, 1st century), determined from barley harvest moons.
4. Length of Jewish year -- from passover to passover.
5. Length of Heshvan and Kislev regulated by length of year.
6. Feast months <sup>(Nisan to Tisri)</sup> alternate 30 and 29 days; in leap year, Adar = 30 and Veadar, 29.
7. Translation period of 1 to 4 days.
8. Leap months determined from moon's place on calendar.

Although the Jews of Elephantine had a temple of their own, and may have had priests who regulated the beginning of their months; yet the papyri yield ample correspondence between the Aramaic and the Jews of Judea. There being only 10 minutes difference between Alexandrian and Jerusalem civil time, the Jewish dates in this series have all been computed in Jerusalem civil time.

PASSOVER METHOD FOR DETERMINING JULIAN EQUIVALENT OF ARAMAIC DATES\* (3)

YEAR	FULL MOON G.M.T.**	NISAN 13 J.C.T.	NISAN 14 J.C.T.	NISAN 1 J.C.T.	CONJUNCTION JER. CIV. T.	TRANSLATION PERIOD (DAYS)	LENGTH OF YEAR (DAYS)
481	May 4.04	4.63	May 5	Apr 22	Apr 19.28	2.47	(111) 354
480	Apr 23.12	23.71	Apr 24	Apr 11	Apr 8.99	1.76	(112) 355
479	Apr 12.16	12.75	Apr 14	Apr 1	Mar 29.64	2.10	(113) 354
478	Apr 30.93	31.52	May 2	Apr 19	Apr 17.58	1.16	(114) 355
477	Apr 19.38	19.97	Apr 21	Apr 8	Apr 5.90	1.84	(115) 354
476	Apr 9.03	9.62	Apr 10	Mar 28	Mar 25.95	1.79	(116) 384
475	Apr 28.04	28.63	Apr 29	Apr 16	Apr 13.64	2.10	(117) 355
474	Apr 17.71	18.30	Apr 19	Apr 6	Apr 2.80	2.94	(118) 384
473	May 5.62	6.21	May 7	Apr 24	Apr 20.68	3.06	(119) 354
472	Apr 24.89	25.48	Apr 26	Apr 13	Apr 10.27	2.47	(120) 354
471	Apr 13.93	14.52	Apr 15	Apr 2	Mar 30.98	1.76	(121) 354
470	May 2.61	3.20	May 4	Apr 21	Apr 18.99	1.75	(122) 384
469	Apr 20.83	21.42	Apr 22	Apr 9	Apr 7.51	1.23	(123) 354
468	Apr 10.35	10.94	Apr 12	Mar 30	Mar 27.73	2.01	(124) 355
467	Apr 29.34	29.93	May 1	Apr 18	Apr 15.42	2.32	(125) 384
466	Apr 19.06	19.65	Apr 20	Apr 7	Apr 4.45	2.29	(126) 354
465	May 7.04	7.63	May 8	Apr 25	Apr 22.21	2.53	(127) 384
464	Apr 26.52	27.11	Apr 28	Apr 15	Apr 11.63	3.11	(128) 355
463	Apr 15.73	16.32	Apr 17	Apr 4	Apr 1.29	2.45	(129) 354
462	May 4.40	4.99	May 6	Apr 23	Apr 20.30	2.44	(130) 384
461	Apr 22.45	23.04	Apr 24	Apr 11	Apr 8.96	1.78	(131) 354
460	Apr 11.75	12.34	Apr 13	Mar 31	Mar 29.40	1.34	(132) 384
459	Apr 30.68	31.27	May 2	Apr 19	Apr 17.18	1.56	(133) 355
458	Apr 20.36	20.95	Apr 22	Apr 9	Apr 6.23	2.51	(134) 355
457	Apr 9.05	9.64	Apr 10	Mar 28	Mar 25.31	2.45	(135) 354
456	Apr 28.02	28.61	Apr 29	Apr 16	Apr 13.12	2.62	(136) 384
455	Apr 17.44	18.03	Apr 19	Apr 6	Apr 2.61	3.12	(137) 355
454	May 6.18	6.77	May 8	Apr 25	Apr 21.59	3.15	(138) 384
453	Apr 24.22	24.81	Apr 26	Apr 13	Apr 10.31	2.43	(139) 354
452	Apr 13.32	13.91	Apr 15	Apr 2	Mar 30.92	1.82	(140) 354
451	May 2.14	2.73	May 4	Apr 21	Apr 18.82	1.92	(141) 383
450	Apr 21.67	22.26	Apr 23	Apr 10	Apr 8.02	1.72	(142) 355
449	Apr 10.36	10.95	Apr 12	Mar 30	Mar 27.05	2.69	(143) 355
448	Apr 29.38	29.97	May 1	Apr 18	Apr 14.76	2.98	(144) 384
447	Apr 18.97	19.56	Apr 20	Apr 7	Apr 4.02	2.72	(145) 354
446	Apr 8.30	8.89	Apr 10	Mar 28	Mar 24.59	3.15	(146) 355
445	Apr 26.02	26.61	Apr 27	Apr 14	Apr 11.61	2.13	(147) 383
444	Apr 15.04	15.63	Apr 16	Apr 3	Apr 1.31	1.43	(148) 354
443	May 3.74	4.33	May 5	Apr 22	Apr 20.28	1.46	(149) 384
442	Apr 23.07	23.66	Apr 24	Apr 11	Apr 9.71	1.03	(150) 354
441	Apr 11.67	12.26	Apr 13	Mar 31	Mar 28.84	1.90	(151) 355
440	Apr 30.69	31.28	May 2	Apr 19	Apr 16.52	2.22	(152) 384
439	Apr 20.37	20.96	Apr 22	Apr 9	Apr 5.60	3.14	(153) 355
438	Apr 9.90	10.49	Apr 11	Mar 29	Mar 25.97	2.77	(154) 354
437	Apr 27.72	28.31	Apr 29	Apr 16	Apr 12.92	2.82	(155) 384
436	Apr 16.83	17.42	Apr 18	Apr 5	Apr 2.61	2.13	(156) 354
435	May 5.50	6.09	May 7	Apr 24	Apr 21.62	2.12	(157) 384
434	Apr 24.61	25.20	Apr 26	Apr 13	Apr 11.24	1.50	(158) 354
433	Apr 13.02	13.61	Apr 14	Apr 1	Mar 30.58	1.16	(159) 384
432	May 1.97	2.56	May 3	Apr 20	Apr 18.30	1.44	(160) 355
431	Apr 21.68	22.27	Apr 23	Apr 10	Apr 7.33	2.41	(161) 355
430	Apr 11.36	11.95	Apr 13	Mar 31	Mar 27.48	3.26	(162) 384
429	Apr 29.27	29.86	May 1	Apr 18	Apr 14.34	3.40	(163) 354
428	Apr 18.57	19.16	Apr 20	Apr 7	Apr 3.91	2.83	(164) 384
427	May 7.29	7.88	May 9	Apr 26	Apr 22.92	2.83	(165) 354
426	Apr 26.31	26.90	Apr 28	Apr 15	Apr 12.63	2.11	(166) 384
425	Apr 14.50	15.09	Apr 16	Apr 3	Apr 1.16	1.58	(167) 354
424	May 3.37	3.96	May 5	Apr 22	Apr 19.99	1.75	(168) 384
423	Apr 22.98	23.57	Apr 24	Apr 11	Apr 9.11	1.63	(169) 354
422	Apr 12.70	13.29	Apr 14	Apr 1	Mar 29.14	2.60	(170) 355
421	Apr 30.69	31.28	May 2	Apr 19	Apr 15.89	2.85	(171) 384
420	Apr 20.20	20.79	Apr 22	Apr 9	Apr 5.28	3.46	(172) 355
419	Apr 9.41	10.00	Apr 11	Mar 29	Mar 25.91	2.83	(173) 354
418	Apr 28.09	28.68	Apr 29	Apr 16	Apr 13.93	1.81	(174) 383
417	Apr 16.14	16.73	Apr 18	Apr 5	Apr 2.61	1.12	(175) 354
416	May 4.90	5.49	May 6	Apr 23	Apr 21.54	1.20	(176) 384
415	Apr 24.34	24.93	Apr 26	Apr 13	Apr 10.86	1.88	(177) 355
414	Apr 13.98	14.57	Apr 15	Apr 2	Mar 30.92	1.82	(178) 354
413	May 2.00	2.59	May 3	Apr 20	Apr 17.60	2.14	(179) 384
412	Apr 21.67	22.26	Apr 23	Apr 10	Apr 6.78	2.96	(180) 355
411	Apr 11.09	11.68	Apr 12	Mar 30	Mar 27.24	2.50	(181) 384
410	Apr 29.86	30.45	May 1	Apr 18	Apr 15.23	2.51	(182) 354
409	Apr 17.90	18.49	Apr 19	Apr 6	Apr 3.93	1.81	(183) 384
408	May 6.59	7.18	May 8	Apr 25	Apr 22.93	1.82	(184) 354
407	Apr 25.80	26.39	Apr 27	Apr 14	Apr 12.46	1.28	(185) 355

6939.697L

6939 DAYS

19 YEAR CYCLE

6940 DAYS

(384)  
(354)  
Change of  
Embollism

19 YEAR CYCLE

6939 20818=  
DAYS  
IN 3  
CYCLES

19 YEAR CYCLE

6940 27758=  
DAYS  
IN 4  
CYCLES

\* The Passover dates, reckoned from full moon, determine length of year, which, in turn, establishes the length of each month.

\*\* Ginzel, "Handbuch der mathematischen und technischen Chronologie," Vol. II. Astronomical dates are reduced to Jerusalem Civil Time (J.C.T.) by adding to each G.M.T. date 14<sup>h</sup> 20<sup>m</sup>, or .59 of a day.

Lunar Period I

Lunar Period II

Lunar Period III

304 years

304 years

304 years

804 B.C.

Babylonian Kings

500 B.C.

Jews Return to Jerusalem

196 B.C.

Antiochus Julius Augustus

109 A.D.

747 B.C.

Ptolemaic Canon

1st yr. of Ginzai

Preces-Papyrus  
1 Thoth B.C.

Advance of Nisan

First Century

\* 112 B.C.

\*\* 45 B.C. 8 A.D.

Leap Days	56 Jan 523	1 day	"400"
"	69 Dec 471	1 "	"A"
"	71 " 465	1 "	"B"
"	73 " 451	1 "	"30"
"	75 " 447	1+1 "	"E"
"	77 " 440	1 "	"F"
"	77 " 439	1 "	"G"
"	82 " 420	1 "	"H"
"	82 " 419	1 "	"6"
"	83 " 416	1 "	"J"
"	84 " 410	1 "	"K"
"	137 Oct 199	1 "	"R.S."

Maccabean Era Calculation Established

31 Friday April 27

RECESSION of ARAMAIC AND EGYPTIAN NEW YEAR

199 B.C. "R.S." (Rosetta Stone)

ANCIENT DOUBLE DATING FOUND ON PAPYRUS, TABLET, AND STONE

	B.C.					1 Thoth ("Aramaic")	
Tablet	523	1	"400"	-- 14 Tammuz = 17 or 18 Phamenoth.	Cambyse 400 Tablet.	Jan 2 1/2	
Papyri	471	2	"A"	-- 18 Elul = 28 Pachons.		Dec 20 19/20	
"	464	3	"B"	-- 18 Kisleu = 17 Thoth.		Dec 18 17/18	
"	451	4	"30"	-- <4 Thoth = 7 Kisleu.		Dec 15 14/15	
"	447	5	"E"	-- <2 Kisleu = 10 Mesore.		Dec 14-13/14	
"	440	6	"F"	-- 14 Ab = 19 Pachons.		Dec 12 11/12	
"	439	7	"G"	-- 26 Tisri = 6 Epiphi.		Dec 12 11/12	
"	420	8	"H"	-- Elul = Payni.		Dec 7 6/7	
"	419	9	"6"	-- Nisan = Tybi (within 2 days) "Passover"		Dec 7 6/7	
"	416	10	"J"	-- 3 Kisleu = 12 Thoth.		Dec 6 5/6	
"	410	11	"K"	-- 24 Shebat = 8 or 9 Athyr.		Dec 5 4/5	
Stone	199	12	"R.S."	-- 4 Xanthicus = 18 Mechir.		Oct 13 12/13	
	460	13	"D"	-- 21 "Hesvan" = 1 Mesore		Dec 16/17	
Eclipses	621	14	Ptol.	-- Lunar eclipse in 5th Nabopolassar = 27th Athyr (127th Nabonassar)		Jan 25/26	
		721	15	Ptol.	-- Lunar eclipse in 2nd year of Mardocempad = 18 to 19 Thoth		Feb 19/20
		523	16	Ptol.	-- Lunar eclipse in 7th year of Cambyses = 17 to 18 Phamenoth		Jan 1/2

TABLE I

POSITION OF JULIAN LEAP YEAR AND RECESSION OF EGYPTIAN NEW YEAR (1 THOTH)

(From ~~333~~ B.C. to ~~240~~ A.D.)\*

B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth
824	748 (Feb 27)	672 (Feb 7/8)	596 (Jan 16/20)	520 (Dec 31/31)	444 (Dec 13/13)	368 (Nov 23/24)
823	747 Nabonassar Era	671	595	519	443	367
822	746	670	594	518	442	366
821-Mar 15	745-Feb 26	669-Feb 7	593-Jan 19	517-Dec 31	441-Dec 12	365-Nov 23
820	744	668	592	516	440 Papyrus "F"	364
819	743	667	591	515	439 Papyrus "G"	363
818	742	666	590	514	438	362
817-Mar 15	741-Feb 25	665-Feb 6	589-Jan 18	513-Dec 30	437-Dec 11	361-Nov 22
816	740	664	588	512	436	360
815	739	663	587	511	435	359
814	738	662	586	510	434	358
813-Mar 14	737-Feb 24	661-Feb 5	585-Jan 17	509-Dec 29	433-Dec 10	357-Nov 21
812	736	660	584	508	432	356
811	735	659	583	507	431	355
810	734	658	582	506	430	354
809-Mar 13	733-Feb 23	657-Feb 4	581-Jan 16	505-Dec 28	429-Dec 9	353-Nov 20
808	732	656	580	504	428	352
807	731	655	579	503	427	351
806	730	654	578	502	426	350
805-Mar 12	729-Feb 22	653-Feb 3	577-Jan 15	501-Dec 27	425-Dec 8	349-Nov 19
804	728	652	576	500	424	348
803	727	651	575	499	423	347
802	726	650	574	498	422	346
801-Mar 11	725-Feb 21	649-Feb 2	573-Jan 14	497-Dec 26	421-Dec 7	345-Nov 18
800	724	648	572	496	420 Papyrus "H"	344
799	723	647	571	495	419	343
798	722	646 Feb 1	570	494	418	342
797-Mar 10	721-Feb 20	645-Jan 31	569-Jan 13	493-Dec 25	417-Dec 6	341-Nov 17
796	720 Eclipse	644	568	492	416 Papyrus "J"	340
795	719	643	567	491	415	339
794	718	642 Feb 31	566	490	414	338
793-Mar 9	717-Feb 19	641-Jan 30	565-Jan 12	489-Dec 24	413-Dec 5	337-Nov 16
792	716	640 31	564	488	412	336
791	715	639	563	487	411	335
790	714	638	562	486	410 Papyrus "K"	334
789-Mar 8	713-Feb 18	637-Jan 29	561-Jan 11	485-Dec 23	409-Dec 4	333-Nov 15
788	712	636	560	484	408	332
787	711	635	559	483	407	331
786	710	634	558	482	406	330
785-Mar 7	709-Feb 17	633-Jan 28	557-Jan 10	481-Dec 22	405-Dec 3	329-Nov 14
784	708	632	556	480	404	328
783	707	631	555	479	403	327
782	706	630	554	478	402	326
781-Mar 6	705-Feb 16	629-Jan 27	553-Jan 9	477-Dec 21	401-Dec 2	325-Nov 13
780	704	628	552	476	400	324
779	703	627	551	475	399	323
778	702	626	550	474	398 Dec 1	322
777-Mar 5	701-Feb 15	625-Jan 26	549-Jan 8	473-Dec 20	397-Dec 30	321-Nov 12
776	700	624	548	472	396	320
775	699	623	547	471 Papyrus "A"	395	319
774	698	622	546	470	394	318
773-Mar 4	697-Feb 14	621 Jan 25	545-Jan 7	469-Dec 19	393-Nov 30	317-Nov 11
772	696	620	544	468	392	316
771	695	619	543	467	391	315
770	694	618	542	466	390	314
769-Mar 3	693-Feb 13	617-Jan 24	541-Jan 6	465-Dec 18	389-Nov 29	313-Nov 10
768	692	616	540	464 Papyrus "B"	388	312
767	691	615	539	463	387	311
766	690	614	538	462	386	310
765-Mar 2	689-Feb 12	613-Jan 23	537-Jan 5	461-Dec 17	385-Nov 28	309-Nov 9
764	688	612	536	460 Papyrus "D"	384	308
763	687	611	535	459	383	307
762	686	610	534	458	382	306
761-Mar 1	685-Feb 11	609-Jan 22	533-Jan 4	457-Dec 16	381-Nov 27	305-Nov 8
760	684	608	532	456	380	304
759	683	607	531	455	379	303
758	682	606	530	454	378	302
757-Feb 29	681-Feb 10	605-Jan 21	529-Jan 3	453-Dec 15	377-Nov 26	301-Nov 7
756	680	604	528	452	376	300
755	679	603	527	451 Papyrus Ungrad "30"	375	299
754	678	602	526	450	374	298
753-Feb 28	677-Feb 9	601-Jan 20	525-Jan 2	449-Dec 14	373-Nov 25	297-Nov 6
752	676	600	524	448	372	296
751	675	599	523	447 Papyrus "E"	371	295
750	674	598	522	446	370	294
749-Feb 27	673-Feb 8	597-Jan 19	521-Jan 1	445-Dec 13	369-Nov 24	293-Nov 5

overs the Sothic Cycle from 1322 B.C. to 139 A.D. Date of 1 Thoth is placed opposite the J which time it occurs a day earlier.

B.C.	1 Thoth	1 Thoth	1 Thoth	1 Thoth
747	Feb 26/27	Feb 7/8	Jan 19/20	Dec 31/444
746	671	596	520	Dec 12/368
*745	*669	*593	*517	Jan 1 443
744	Feb 25/26	Feb 6/7	Jan 18/19	442
743	667	591	515	441
742	666	590	514	440
*741	*665	*589	*513	439
740	Feb 24/25	Feb 5/6	Jan 17/18	438
739	663	588	512	437
738	662	587	511	436
*737	*661	*585	*509	435
736	Feb 23/24	Feb 4/5	Jan 16/17	434
735	659	584	508	433
734	658	583	507	432
*733	*657	*581	*505	431
732	Feb 22/23	Feb 3/4	Jan 15/16	430
731	655	580	504	429
730	654	579	503	428
*729	*653	*577	*501	427
728	Feb 21/22	Feb 2/3	Jan 14/15	426
727	651	576	500	425
726	650	575	499	424
*725	*649	*573	*497	423
724	Feb 20/21	Feb 1/2	Jan 13/14	422
723	647	572	496	421
722 (Lunar Cal. 19 Thoth)	646	571	495	420
*721	*645	*569	*493	419
720	Feb 19/20	Jan 31/1	Jan 12/13	418
719	643	567	492	417
718	642	566	491	416
*717	*641	*565	*489	415
716	Feb 18/19	Jan 30/31	Jan 11/12	414
715	639	564	488	413
714	638	563	487	412
*713	*637	*561	*485	411
712	Feb 17/18	Jan 29/30	Jan 10/11	410
711	635	560	484	409
710	634	559	483	408
*709	*633	*557	*481	407
708	Feb 16/17	Jan 28/29	Jan 9/10	406
707	631	555	479	405
706	630	554	478	404
*705	*629	*553	*477	403
704	Feb 15/16	Jan 27/28	Jan 8/9	402
703	627	551	476	401
702	626	550	475	400
*701	*625	*549	*473	399
700	Feb 14/15	Jan 26/27	Jan 7/8	398
699	623	547	472	397
698	622	546	471	396
*697	*621 (Apr. 21)	*545	*469	395
696	Feb 13/14	Jan 25/26	Jan 6/7	394
695	619	543	468	393
694	618	542	467	392
*693	*617	*541	*465	391
692	Feb 12/13	Jan 24/25	Jan 5/6	390
691	615	539	464	389
690	614	538	463	388
*689	*613	*537	*461	387
688	Feb 11/12	Jan 23/24	Jan 4/5	386
687	611	535	460	385
686	610	534	459	384
*685	*609	*533	*457	383
684	Feb 10/11	Jan 22/23	Jan 3/4	382
683	607	531	456	381
682	606	530	455	380
*681	*605	*529	*453	379
680	Feb 9/10	Jan 21/22	Jan 2/3	378
679	603	527	452	377
678	602	526	451	376
*677	*601	*525	*449	375
676	Feb 8/9	Jan 20/21	Jan 1/2	374
675	599	523	448	373
674	598	522	447	372
*673	*597	*521	*445	371

B.C.	1 Thoth	1 Thoth	1 Thoth	1 Thoth	1 Thoth						
292	Nov 5	2168	Oct 16	140	Sep 28	64	Sep 9	13	Aug 21	89	Aug 2
291		215		139		63		14		90	
290		214		138		62		15		91	
*289		*213		*137		*61		*16		*92	
288	Nov 4	212	Oct 16	136	Sep 27	60	Sep 8	17	Aug 20	93	Aug 1
287		211		135		59		18		94	
286		210		134		58		19		95	
*285		*209		*133		*57		*20		*96	
284	Nov 3	208	Oct 15	132	Sep 26	56	Sep 7	21	Aug 19	97	Jul 30
283		207		131		55		22		98	
282		206		130		54		23		99	
*281		*205		*129		*53		*24		*100	
280	Nov 2	204	Oct 14	128	Sep 25	52	Sep 6	25	Aug 18	101	Jul 30
279		203		127		51		26		102	
278		202		126		50		27		103	
*277		*201		*125		*49		*28		*104	
276		200	Oct 13	124	Sep 24	48	Sep 5	29	Aug 17	105	Jul 29
275		199		123		47		30		106	
274	Nov 1	198		122		46		31		107	
*273		*197		*121		*45		*32		*108	
272	Oct 31	196	Oct 12	120	Sep 23	44	Sep 4	33	Aug 16	109	Jul 28
271		195		119		43		34		110	
270		194		118		42		35		111	
*269		*193		*117		*41		*36		*112	
268	Oct 30	192	Oct 11	116	Sep 22	40	Sep 3	37	Aug 15	113	Jul 27
267		191		115		39		38		114	
266		190		114		38		39		115	
*265		*189		*113		*37		*40		*116	
264	Oct 29	188	Oct 10	112	Sep 21	36	Sep 2	41	Aug 14	117	Jul 26
263		187		111		35		42		118	
262		186		110		34		43		119	
*261		*185		*109		*33		*44		*120	
260	Oct 28	184	Oct 9	108	Sep 20	32	Sept 1	45	Aug 13	121	Jul 25
259		183		107		31	Sept 46	46		122	
258		182		106		30		47		123	
*257		*181		*105		*29		*48		*124	
256	Oct 27	180	Oct 8	104	Sep 19	28	Aug 31	49	Aug 12	125	Jul 24
255		179		103		27		50		126	
254		178		102		26		51		127	
*253		*177		*101		*25		*52		*128	
252	Oct 26	176	Oct 7	100	Sep 18	24	Aug 30	53	Aug 11	129	Jul 23
251		175		99		23		54		130	
250		174		98		22		55		131	
*249		*173		*97		*21		*56		*132	
248	Oct 25	172	Oct 6	96	Sep 17	20	Aug 29	57	Aug 10	133	Jul 22
247		171		95		19		58		134	
246		170		94		18		59		135	
*245		*169		*93		*17		*60		*136	
244	Oct 24	168	Oct 5	92	Sep 16	16	Aug 28	61	Aug 9	137	Jul 21
243		167		91		15		62		138	
242		166		90		14		63		139	
*241		*165		*89		*13		*64		*140	Jul 19/20
240	Oct 23	164	Oct 4	88	Sep 15	12	Aug 27	65	Aug 8		
239		163		87		11		66			
238		162		86		10		67			
*237		*161		*85		*9		*68			
236	Oct 22	160	Oct 3	84	Sep 14	8	Aug 26	69	Aug 7		
235		159		83		7		70			
234		158		82		6		71			
*233		*157		*81		*5		*72			
232	Oct 21	156	Oct 2	80	Sep 13	4	Aug 25	73	Aug 6		
231		155		79		3		74			
230		154		78		2		75			
*229	Oct 20	*153	Oct 1	*77	Sep 12	*1	Aug 24	*76	Aug 5		
228		152		76		1		77			
227		151		75		2		78			
226		150		74		3		79			
*225		*149		*73		*4		*80			
224	Oct 19	148	Sep 30	72	Sep 11	5	Aug 23	81	Aug 4		
223		147		71		6		82			
222		146		70		7		83			
*221		*145		*69		*8		*84			
220	Oct 18	144	Sep 29	68	Sep 10	9	Aug 22	85	Aug 3		
219		143		67		10		86			
218		142		66		11		87			
*217		*141		*65		*12		*88			

1327  
139  
1460

*Just Reading*  
TABLE

*This is proper heading*

EGYPTIAN NEW YEAR (1 THOTH) AND ITS JULIAN EQUIVALENT DATE  
(NOON TO NOON, ASTRONOMICAL TIME -- FROM 1356 B.C. TO 238 A.D.)\*

B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth
292	216	140	64	13	89	165
291	215	139	63	14	90	166
290	214	138	62	15	91	167
289-Nov 314	213-Oct 15/16	137-Sep 20/27	61-Sep 7/8	16-Aug 19/20	92-Jul 31/31	168-Jul 12/13
288	212	136	60	17	93	169
287	211	135	59	18	94	170
286	210	134	58	19	95	171
285-Nov 213	209-Oct 14/15	133-Sep 25/26	57-Sep 5/7	20-Aug 18/19	96-Jul 30/31	172-Jul 11/12
284	208	132	56	21	97	173
283	207	131	55	22	98	174
282	206	130	54	23	99	175
281-Nov 112	205-Oct 13/14	129-Sep 24/25	53-Sep 3/6	24-Aug 17/18	100-Jul 29/30	176-Jul 10/11
280	204	128	52	25	101	177
279	203	127	51	26	102	178
278 Nov	202	126	50	27	103	179
277-Oct 31/31	201-Oct 12/13	125-Sep 23/24	49-Sep 4/5	28-Aug 16/17	104-Jul 28/29	180-Jul 9/10
276	200	124	48	29	105	181
275	199	123	47	30	106	182
274	198	122	46	31	107	183
273-Oct 30/31	197-Oct 11/12	121-Sep 22/23	45-Sep 3/4	32-Aug 15/16	108-Jul 27/28	184-Jul 8/9
272	196	120	44	33	109	185
271	195	119	43	34	110	186
270	194	118	42	35	111	187
269-Oct 29/30	193-Oct 10/11	117-Sep 21/22	41-Sep 2/3	36-Aug 14/15	112-Jul 26/27	188-Jul 7/8
268	192	116	40	37	113	189
267	191	115	39	38	114	190
266	190	114	38	39	115	191
265-Oct 28/29	189-Oct 9/10	113-Sep 20/21	37-Sep 1/2	40-Aug 13/14	116-Jul 25/26	192-Jul 6/7
264	188	112	36	41	117	193
263	187	111	35	42	118	194
262	186	110	34	43	119	195
261-Oct 27/28	185-Oct 8/9	109-Sep 19/20	33-Aug 31/31	44-Aug 12/13	120-Jul 24/25	196-Jul 5/6
260	184	108	32	45	121	197
259	183	107	31	46	122	198
258	182	106	30	47	123	199
257-Oct 26/27	181-Oct 7/8	105-Sep 18/19	29-Aug 30/31	48-Aug 11/12	124-Jul 23/24	200-Jul 4/5
256	180	104	28	49	125	201
255	179	103	27	50	126	202
254	178	102	26	51	127	203
253-Oct 25/26	177-Oct 6/7	101-Sep 17/18	25-Aug 29/30	52-Aug 10/11	128-Jul 22/23	204-Jul 3/4
252	176	100	24	53	129	205
251	175	99	23	54	130	206
250	174	98	22	55	131	207
249-Oct 24/25	173-Oct 5/6	97-Sep 16/17	21-Aug 28/29	56-Aug 9/10	132-Jul 21/22	208-Jul 2/3
248	172	96	20	57	133	209
247	171	95	19	58	134	210
246	170	94	18	59	135	211
245-Oct 23/24	169-Oct 4/5	93-Sep 15/16	17-Aug 27/28	60-Aug 8/9	136-Jul 20/21	212-Jul 1/2
244	168	92	16	61	137	213
243	167	91	15	62	138	214
242	166	90	14	63	139	215
241-Oct 22/23	165-Oct 3/4	89-Sep 14/15	13-Aug 26/27	64-Aug 7/8	140-Jul 19/20	216-Jun 30/31
240	164	88	12	65	141	217
239	163	87	11	66	142	218
238	162	86	10	67	143	219
237-Oct 21/22	161-Oct 2/3	85-Sep 13/14	9-Aug 25/26	68-Aug 6/7	144-Jul 18/19	220-Jun 29/30
236	160	84	8	69	145	221
235	159	83	7	70	146	222
234	158	82	6	71	147	223
233-Oct 20/21	157-Oct 1/2	81-Sep 12/13	5-Aug 24/25	72-Aug 5/6	148-Jul 17/18	224-Jun 28/29
232	156	80	4	73	149	225
231	155	79	3	74	150	226
230	154	78	2	75	151	227
229-Oct 19/20	153-Oct 30/31	77-Sep 11/12	1-Aug 23/24	76-Aug 4/5	152-Jul 16/17	228-Jun 27/28
228	152	76	1	77	153	229
227	151	75	2	78	154	230
226	150	74	3	79	155	231
225-Oct 18/19	149-Sep 29/30	73-Sep 10/11	4-Aug 22/23	80-Aug 3/4	156-Jul 15/16	232-Jun 26/27
224	148	72	5	81	157	233
223	147	71	6	82	158	234
222	146	70	7	83	159	235
221-Oct 17/18	145-Sep 28/29	69-Sep 9/10	8-Aug 21/22	84-Aug 2/3	160-Jul 14/15	236-Jun 25/26
220	144	68	9	85	161	237
219	143	67	10	86	162	238
218	142	66	11	87	163	239
217-Oct 16/17	141-Sep 27/28	65-Sep 8/9	12-Aug 20/21	88-Aug 1/2	164-Jul 13/14	240-Jun 24/25

- 1 Thoth
- 2 Paophi
- 3 Athyr
- 4 Choiak
- 5 Tybi
- 6 Mechir
- 7 Phamenoth
- 8 Pharmuthi
- 9 Pachons
- 10 Payni
- 11 Epiphi
- 12 Mesori

- Macedonian
- 1 Xanthicus
- 2 Artemisius
- 3 Daesius
- 4 Panemus
- 5 Lous
- 6 Gorpiaeus
- 7 Hyperberetaeus
- 8 Dius
- 9 Apellaeus
- 10 Audynaesus
- 11 Peritius
- 12 Dystrus
- 13 Dioscorus

\* This covers the Sothic Cycle from 1322 B.C. to 139 A.D. Date of 1 Thoth is placed opposite the Julian leap year, at which time it occurs a day earlier, and continues for four years. For Example, February 24/25 is Egyptian new year day for years 744 to 747

**Egyptian New Year Table and its Julian Equivalent Dates**  
 (Noon to Noon, Astronomical Time - From 1825 B.C. to 238 A.D.)\* (1-a) ①

	B.C. 1Thoth	B.C. 1Thoth	B.C. 1Thoth	B.C. 1Thoth	B.C. 1Thoth
		1584	1508	1432	1356
		1583	1507	1431	1355
		1582	1506	1430	1354
		1581-Sep 21/22	1505-Sep 2/3	1429-Aug 14/15	1353-Jul 26-27
		1580	1504	1428	1352
		1579	1503	1427	1351
		1578	1502	1426	1350
		1577-Sep 20/21	1501-Sep 1/2	1425-Aug 13/14	1349-Jul 25-26
		1576	1500	1424	1348
		1575	1499	1423	1347
		1574	1498	1422	1346
		1573-Sep 19/20	1497-Aug 31/S1	1421-Aug 12/13	1345-Jul 24/25
		1572	1496	1420	1344
		1571	1495	1419	1343
		1570	1494	1418	1342
		1569-Sep 18/19	1493-Aug 30/31	1417-Aug 11/12	1341-Jul 23/24
		1568	1492	1416	1340
		1567	1491	1415	1339
		1566	1490	1414	1338
		1565-Sep 17/18	1489-Aug 29/30	1413-Aug 10/11	1337-Jul 22/23
		1564	1488	1412	1336
		1563	1487	1411	1335
		1562	1486	1410	1334
		1561-Sep 16/17	1485-Aug 28/29	1409-Aug 9/10	1333-Jul 21/22
		1560	1484	1408	1332
		1559	1483	1407	1331
		1558	1482	1406	1330
		1557-Sep 15/16	1481-Aug 27/28	1405-Aug 8/9	1329-Jul 20/21
		1556	1480	1404	1328
		1555	1479	1403	1327
		1554	1478	1402	1326
		1553-Sep 14/15	1477-Aug 26/27	1401-Aug 7/8	1325-Jul 19/20
		1552	1476	1400	1324
		1551	1475	1399	1323
		1550	1474	1398	1322
		1549-Sep 13/14	1473-Aug 25/26	1397-Aug 6/7	1321-Jul 18/19
		1548	1472	1396	1320
		1547	1471	1395	1319
		1546	1470	1394	1318
		1545-Sep 12/13	1469-Aug 24/25	1393-Aug 5/6	1317-Jul 17/18
		1544	1468	1392	1316
		1543	1467	1391	1315
		1542	1466	1390	1314
		1541-Sep 11/12	1465-Aug 23/24	1389-Aug 4/5	1313-Jul 16/17
		1540	1464	1388	1312
		1539	1463	1387	1311
		1538	1462	1386	1310
		1537-Sep 10/11	1461-Aug 22/23	1385-Aug 3/4	1309-Jul 15/16
		1536	1460	1384	1308
		1535	1459	1383	1307
		1534	1458	1382	1306
		1533-Sep 9/10	1457-Aug 21/22	1381-Aug 2/3	1305-Jul 14/15
		1532	1456	1380	1304
		1531	1455	1379	1303
		1530	1454	1378	1302
		1529-Sep 8/9	1453-Aug 20/21	1377-Aug 1/2	1301-Jul 13/14
		1528	1452	1376	1300
		1527	1451	1375	1299
		1526	1450	1374	1298
		1525-Sep 7/8	1449-Aug 19/20	1373-Jul 31/A1	1297-Jul 12/13
		1524	1448	1372	1296
		1523	1447	1371	1295
		1522	1446	1370	1294
		1521-Sep 6/7	1445-Aug 18/19	1369-Jul 30/31	1293-Jul 11/12
		1520	1444	1368	1292
		1519	1443	1367	1291
		1518	1442	1366	1290
		1517-Sep 5/6	1441-Aug 17/18	1365-Jul 29/30	1289-Jul 10/11
		1516	1440	1364	1288
		1515	1439	1363	1287
		1514	1438	1362	1286
		1513-Sep 4/5	1437-Aug 16/17	1361-Jul 28/29	1285-Jul 9/10
		1512	1436	1360	1284
		1511	1435	1359	1283
		1510	1434	1358	1282
		1509-Sep 3/4	1433-Aug 15/16	1357-Jul 27/28	1281-Jul 8/9

Macedonian Months

- 1 Xanthicus
- 2 Artemisius
- 3 Daebius
- 4 Panemus
- 5 Lous
- 6 Gorpiaeus
- 7 Hyperberetaeus
- 8 Dios
- 9 Apellaeus
- 10 Audynaesus
- 11 Peritius
- 12 Dystus
- 13 Dioscorus (Leap month)

Hebrew

- 1 Nisan 30
- 2 Iyar 29
- 3 Sivan 30
- 4 Tammuz 29
- 5 Ab 30
- 6 Elul 29
- 7 Tisri 30
- 8 Heshvan 29
- 9 Kislev 30
- 10 Tebeth 29
- 11 Shebat 30
- 12 Adar 29
- 13 Veadar 29 (Leap month)

Egyptian

- 1 Thoth 30
- 2 Paophi "
- 3 Athyr "
- 4 Choiak "
- 5 Tybi "
- 6 Mechir "
- 7 Phamenoth "
- 8 Pharmuthi "
- 9 Pachons "
- 10 Payni "
- 11 Epiphi "
- 12 Mesori 35

Zodiac Signs

- Aries
- Taurus
- Gemini
- Cancer
- Leo
- Virgo
- Libra
- Scorpio
- Sagittary
- Capricorn
- Aquarius
- Pices

\* This period covers the Sothic Cycle from 1322 B.C. to 139 A.D. Date of 1 Thoth is placed opposite the Julian leap year, at which time it occurs a day earlier, and continues for four years. For example, February 25/26 is Egyptian new year for years 745 to 742.



(1)

(2)

Stencil

(From 5 Noon, Astronomical Time)

~~TABLE I~~  
 (1 THOTH) Table  
 EGYPTIAN NEW YEAR AND ITS JULIAN EQUIVALENT DATE  
 (From 1322 B.C. to 139 A.D.)\*

B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth	A.D. 1 Thoth
292	216	140	64	13	89	165	241
291	215	139	63	14	90	166	242
290	214	138	62	15	91	167	243
289-Nov 4	213-Oct 16	137-Sep 27	61-Sep 8	16-Aug 20	92-Aug 1	168-Jul 13	244-Jun 23/24
288	212	136	60	17	93	169	245
287	211	135	59	18	94	170	246
286	210	134	58	19	95	171	247
285-Nov 5	209-Oct 15	133-Sep 26	57-Sep 7	20-Aug 19	96-Jul 31	172-Jul 12	248-Jun 22/23
284	208	132	56	21	97	173	249
283	207	131	55	22	98	174	250
282	206	130	54	23	99	175	
281-Nov 2	205-Oct 14	129-Sep 25	53-Sep 6	24-Aug 18	100-Jul 30	176-Jul 11	
280	204	128	52	25	101	177	
279	203	127	51	26	102	178	
278	202	126	50	27	103	179	
277-Nov 1	201-Oct 13	125-Sep 24	49-Sep 5	28-Aug 17	104-Jul 29	180-Jul 10	
276	200	124	48	29	105	181	
275	199	123	47	30	106	182	
274	198	122	46	31	107	183	
273-Oct 31	197-Oct 12	121-Sep 23	45-Sep 4	32-Aug 16	108-Jul 28	184-Jul 9	
272	196	120	44	33	109	185	
271	195	119	43	34	110	186	
270	194	118	42	35	111	187	
269-Oct 30	193-Oct 11	117-Sep 22	41-Sep 3	36-Aug 15	112-Jul 27	188-Jul 8	
268	192	116	40	37	113	189	
267	191	115	39	38	114	190	
266	190	114	38	39	115	191	
265-Oct 29	189-Oct 10	113-Sep 21	37-Sep 2	40-Aug 14	116-Jul 26	192-Jul 7	
264	188	112	36	41	117	193	
263	187	111	35	42	118	194	
262	186	110	34	43	119	195	
261-Oct 28	185-Oct 9	109-Sep 20	33-Sep 1	44-Aug 13	120-Jul 25	196-Jul 6	
260	184	108	32	45	121	197	
259	183	107	31	46	122	198	
258	182	106	30	47	123	199	
257-Oct 27	181-Oct 8	105-Sep 19	29-Aug 31	48-Aug 12	124-Jul 24	200-Jul 5	
256	180	104	28	49	125	201	
255	179	103	27	50	126	202	
254	178	102	26	51	127	203	
253-Oct 26	177-Oct 7	101-Sep 18	25-Aug 30	52-Aug 11	128-Jul 23	204-Jul 4	
252	176	100	24	53	129	205	
251	175	99	23	54	130	206	
250	174	98	22	55	131	207	
249-Oct 25	173-Oct 6	97-Sep 17	21-Aug 29	56-Aug 10	132-Jul 22	208-Jul 3	
248	172	96	20	57	133	209	
247	171	95	19	58	134	210	
246	170	94	18	59	135	211	
245-Oct 24	169-Oct 5	93-Sep 16	17-Aug 28	60-Aug 9	136-Jul 21	212-Jul 2	
244	168	92	16	61	137	213	
243	167	91	15	62	138	214	
242	166	90	14	63	139	215	
241-Oct 23	165-Oct 4	89-Sep 15	13-Aug 27	64-Aug 8	140-Jul 20	216-Jul 1	
240	164	88	12	65	141	217	
239	163	87	11	66	142	218	
238	162	86	10	67	143	219	
237-Oct 22	161-Oct 3	85-Sep 14	9-Aug 26	68-Aug 7	144-Jul 19	220-Jun 30	
236	160	84	8	69	145	221	
235	159	83	7	70	146	222	
234	158	82	6	71	147	223	
233-Oct 21	157-Oct 2	81-Sep 13	5-Aug 25	72-Aug 6	148-Jul 18	224-Jun 29	
232	156	80	4	73	149	225	
231	155	79	3	74	150	226	
230	154	78	2	75	151	227	
229-Oct 20	153-Oct 1	77-Sep 12	1-Aug 24	76-Aug 5	152-Jul 17	228-Jun 28	
228	152	76	1	77	153	229	
227	151	75	2	78	154	230	
226	150	74	3	79	155	231	
225-Oct 19	149-Sep 30	73-Sep 11	4-Aug 23	80-Aug 4	156-Jul 16	232-Jun 27	
224	148	72	5	81	157	233	
223	147	71	6	82	158	234	
222	146	70	7	83	159	235	
221-Oct 18	145-Sep 29	69-Sep 10	8-Aug 22	84-Aug 3	160-Jul 15	236-Jun 26	
220	144	68	9	85	161	237	
219	143	67	10	86	162	238	
218	142	66	11	87	163	239	
217-Oct 17	141-Sep 28	65-Sep 9	12-Aug 21	88-Aug 2	164-Jul 14	240-Jun 25	

\*This period covers the Sothic Cycle from 1322 B.C. to 139 A.D. Date of 1 Thoth is placed opposite the Julian leap year, at which time it occurs a day earlier, and continues for four years

# Passover Method for Determining Julian Equivalent of Aramaic Dates

Year	Full Moon GMT**	Nisan 13 J.C.T.	Nisan 14 J.C.T.	Nisan 1 J.C.T.	Conjunction Jer. Civ. T.	Translation Period (Days)	Length of year (Days)
481	May 4.04	4.433	May 5	Apr 22	Apr. 19.28	2.47	(1) 354
480	Apr 23.12	23.71	Apr 24	Apr 11	Apr 8.99	1.76	(12) 355
479	Apr 12.16	12.75	Apr 14	Apr 1	Mar 29.64	2.10	(13) 383
478	Apr 30.93	31.52	May 2	Apr 19	Apr 17.58	1.16	(14) 355
477	Apr 19.38	19.97	Apr 21	Apr 8	Apr 5.90	1.84	(15) 354
476	Apr 9.03	9.52	Apr 10	Mar 28	Mar 25.95	1.79	(16) 384
475	Apr 28.04	28.63	Apr 29	Apr 16	Apr 13.64	2.10	(17) 355
474	Apr 17.71	18.30	Apr 19	Apr 6	Apr 2.80	2.94	(18) 384
473	May 5.62	6.21	May 7	Apr 24	Apr 20.68	3.06	(19) 354
472	Apr 24.89	25.48	Apr 26	Apr 13	Apr 10.27	2.47	(1) 354
* 471	Apr 13.93	14.52	Apr 15	Apr 2	Mar 30.98	1.76	(2) 384
470	May 2.61	3.20	May 4	Apr 21	Apr 18.99	1.75	(3) 354
469	Apr 20.83	21.42	Apr 22	Apr 9	Apr 7.51	1.23	(4) 355
468	Apr 10.35	10.94	Apr 12	Mar 30	Mar 27.73	2.01	(5) 384
467	Apr 29.34	29.93	May 1	Apr 18	Apr 15.42	2.32	(6) 354
466	Apr 19.06	19.65	Apr 20	Apr 7	Apr 4.45	2.29	(7) 384
* 465	May 7.04	7.63	May 8	Apr 25	Apr 22.21	2.53	(8) 355
464	Apr 26.52	27.11	Apr 28	Apr 15	Apr 11.63	3.11	(9) 354
463	Apr 15.73	16.32	Apr 17	Apr 4	Apr 1.29	2.45	(10) 384
462	May 4.40	4.99	May 6	Apr 23	Apr 20.30	2.44	(11) 354
461	Apr 22.45	23.04	Apr 24	Apr 11	Apr 8.96	1.78	(12) 354
* 460	Apr 11.75	12.34	Apr 13	Mar 31	Mar 29.40	1.94	(13) 384
459	Apr 30.68	31.27	May 2	Apr 19	Apr 17.18	1.56	(14) 355
458	Apr 20.36	20.95	Apr 22	Apr 9	Apr 6.23	2.51	(15) 354
457	Apr 9.05	9.64	Apr 10	Mar 28	Mar 25.31	2.43	(16) 384
456	Apr 28.02	28.61	Apr 29	Apr 16	Apr 13.12	2.62	(17) 355
455	Apr 17.44	18.03	Apr 19	Apr 6	Apr 2.61	3.12	(18) 384
454	May 6.18	6.77	May 8	Apr 25	Apr 21.59	3.15	(19) 354
453	Apr 24.22	24.81	Apr 26	Apr 13	Apr 10.31	2.43	(1) 354
452	Apr 13.32	13.91	Apr 15	Apr 2	Mar 30.92	1.82	(2) 383
* 451	May 2.14	2.73	May 4	Apr 21	Apr 18.82	1.92	(3) 355
450	Apr 21.67	22.26	Apr 23	Apr 10	Apr 8.02	1.72	(4) 355
449	Apr 10.36	10.95	Apr 12	Mar 30	Mar 27.05	2.69	(5) 384
448	Apr 29.38	29.97	May 1	Apr 18	Apr 14.76	2.98	(6) 354
* 447	Apr 18.97	19.56	Apr 20	Apr 7	Apr 4.02	2.72	(7) 355
446	Apr 8.30	8.89	Apr 10	Mar 28	Mar 24.59	3.15	(8) 383
445	Apr 26.02	26.61	Apr 27	Apr 14	Apr 11.61	2.13	(9) 354
444	Apr 15.04	15.63	Apr 16	Apr 3	Apr 1.31	1.43	(10) 384
443	May 3.74	4.33	May 5	Apr 22	Apr 20.28	1.46	(11) 354
442	Apr 23.07	23.66	Apr 24	Apr 11	Apr 9.71	1.03	(12) 355
441	Apr 11.67	12.26	Apr 13	Mar 31	Mar 28.84	1.90	(13) 384
* 440	Apr 30.69	31.28	May 2	Apr 19	Apr 16.52	2.22	(14) 355
* 439	Apr 20.37	20.95	Apr 22	Apr 9	Apr 5.60	3.14	(15) 354
438	Apr 9.90	10.49	Apr 11	Mar 29	Mar 25.97	2.77	(16) 384
437	Apr 27.72	28.31	Apr 29	Apr 16	Apr 12.92	2.82	(17) 354
436	Apr 16.83	17.42	Apr 18	Apr 5	Apr 2.61	2.13	(18) 384
435	May 5.50	6.09	May 7	Apr 24	Apr 21.62	2.12	(19) 354
434	Apr 24.61	25.20	Apr 26	Apr 13	Apr 11.24	1.50	(1) 354
433	Apr 13.02	13.61	Apr 14	Apr 1	Mar 30.58	1.16	(2) 384
432	May 1.97	2.56	May 3	Apr 20	Apr 18.30	1.44	(3) 355
431	Apr 21.68	22.27	Apr 23	Apr 10	Apr 7.33	2.41	(4) 355
430	Apr 11.36	11.95	Apr 13	Mar 31	Mar 27.48	3.26	(5) 384
429	Apr 29.27	29.86	May 1	Apr 18	Apr 14.34	3.40	(6) 354
428	Apr 18.57	19.16	Apr 20	Apr 7	Apr 3.91	2.83	(7) 384
427	May 7.29	7.88	May 9	Apr 26	Apr 22.92	2.83	(8) 354
426	Apr 26.31	26.90	Apr 28	Apr 15	Apr 12.63	2.11	(9) 354
425	Apr 14.50	15.09	Apr 16	Apr 3	Apr 1.16	1.58	(10) 384
424	May 3.37	3.96	May 5	Apr 22	Apr 19.99	1.75	(11) 354
423	Apr 22.98	23.57	Apr 24	Apr 11	Apr 9.11	1.63	(12) 355
422	Apr 12.70	13.29	Apr 14	Apr 1	Mar 29.14	2.60	(13) 384
421	Apr 30.69	31.28	May 2	Apr 19	Apr 15.89	2.85	(14) 355
* 420	Apr 20.20	20.79	Apr 22	Apr 9	Apr 5.28	3.46	(15) 354
* 419	Apr 9.41	10.00	Apr 11	Mar 29	Mar 25.91	2.83	(16) 383
418	Apr 28.09	28.68	Apr 29	Apr 16	Apr 13.93	1.81	(17) 354
417	Apr 16.14	16.73	Apr 18	Apr 5	Apr 2.61	1.12	(18) 384
* 416	May 4.90	5.49	May 6	Apr 23	Apr 21.54	1.20	(19) 355
415	Apr 24.34	24.93	Apr 26	Apr 13	Apr 10.86	1.88	(1) 354
414	Apr 13.98	14.57	Apr 15	Apr 2	Mar 30.92	1.82	(2) 384
413	May 2.00	2.59	May 3	Apr 20	Apr 17.60	2.14	(3) 355
412	Apr 21.67	22.26	Apr 23	Apr 10	Apr 6.78	2.96	(4) 354
411	Apr 11.09	11.68	Apr 12	Mar 30	Mar 27.24	2.50	(5) 384
* 410	Apr 29.86	30.45	May 1	Apr 18	Apr 15.23	2.51	(6) 354
409	Apr 17.90	18.49	Apr 19	Apr 6	Apr 3.93	1.81	(7) 384
408	May 6.59	7.18	May 8	Apr 25	Apr 22.93	1.82	(8) 354
407	Apr 25.80	26.39	Apr 27	Apr 14	Apr 12.46	1.28	(9) 355

6939 Days

19 = year cycle

6940 Days

(384) Change of Embolism (354)

6939 20818 = 70 days in 3 cycles  
20819.06 days demanded by moon's count starts.

6940 27758 = 70 days in 4 cycles

\* The Passover dates, reckoned from full moon, determine length of year, which, in turn, establishes the length of each month.

\*\* Ginzler, "Handbuch der mathematischen und technischen Chronologie," Vol. II. These Astronomical dates are reduced to Jewish Civil Time (J.C.T.) by adding to each G.M.T. date 14<sup>h</sup> 20<sup>m</sup>, or .59 of a day.

(Put more space between columns)

Egyptian New Year (1 Thoth) and its Julian Equivalent Date  
 (Noon to Noon, Astronomical Time - From 1356 B.C. to 238 A.D.)\* (1-b)

TABLE I

1625

~~POSITION OF JULIAN LEAP YEAR AND RECESSON OF EGYPTIAN NEW YEAR (1 THOTH)~~  
 (From 1356 B.C. to 238 A.D.)\*

<del>equan</del> B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth
1280	1204	1128	1052	976	900
1279	1203	1127	1051	975	899
1278	1202	1126	1050	974	898
1277-Jul 7/8	1201-Jun 18/19	1125-May 30/31	1049-May 11/12	973-Apr 22/23	897-Apr 3/4
1276	1200	1124	1048	972	896
1275	1199	1123	1047	971	895
1274	1198	1122	1046	970	894
1273-Jul 6/7	1197-Jun 17/18	1121-May 29/30	1045-May 10/11	969-Apr 21/22	893-Apr 2/3
1272	1196	1120	1044	968	892
1271	1195	1119	1043	967	891
1270	1194	1118	1042	966	890
1269-Jul 5/6	1193-Jun 16/17	1117-May 28/29	1041-May 9/10	965-Apr 20/21	889-Apr 1/2
1268	1192	1116	1040	964	888
1267	1191	1115	1039	963	887
1266	1190	1114	1038	962	886
1265-Jul 4/5	1189-Jun 15/16	1113-May 27/28	1037-May 8/9	961-Apr 19/20	885-Mar 31/A1
1264	1188	1112	1036	960	884
1263	1187	1111	1035	959	883
1262	1186	1110	1034	958	882
1261-Jul 3/4	1185-Jun 14/15	1109-May 26/27	1033-May 7/8	957-Apr 18/19	881-Mar 30/31
1260	1184	1108	1032	956	880
1259	1183	1107	1031	955	879
1258	1182	1106	1030	954	878
1257-Jul 2/3	1181-Jun 13/14	1105-May 25/26	1029-May 6/7	953-Apr 17/18	877-Mar 29/30
1256	1180	1104	1028	952	876
1255	1179	1103	1027	951	875
1254	1178	1102	1026	950	874
1253-Jul 1/2	1177-Jun 12/13	1101-May 24/25	1025-May 5/6	949-Apr 16/17	873-Mar 28/29
1252	1176	1100	1024	948	872
1251	1175	1099	1023	947	871
1250	1174	1098	1022	946	870
1249-Jun 30/J1	1173-Jun 11/12	1097-May 23/24	1021-May 4/5	945-Apr 15/16	869-Mar 27/28
1248	1172	1096	1020	944	868
1247	1171	1095	1019	943	867
1246	1170	1094	1018	942	866
1245-Jun 29/30	1169-Jun 10/11	1093-May 22/23	1017-May 3/4	941-Apr 14/15	865-Mar 26/27
1244	1168	1092	1016	940	864
1243	1167	1091	1015	939	863
1242	1166	1090	1014	938	862
1241-Jun 28/29	1165-Jun 9/10	1089-May 21/22	1013-May 2/3	937-Apr 13/14	861-Mar 25/26
1240	1164	1088	1012	936	860
1239	1163	1087	1011	935	859
1238	1162	1086	1010	934	858
1237-Jun 27/28	1161-Jun 8/9	1085-May 20/21	1009-May 1/2	933-Apr 12/13	857-Mar 24/25
1236	1160	1084	1008	932	856
1235	1159	1083	1007	931	855
1234	1158	1082	1006	930	854
1233-Jun 26/27	1157-Jun 7/8	1081-May 19/20	1005-Apr 30/M1	929-Apr 11/12	853-Mar 23/24
1232	1156	1080	1004	928	852
1231	1155	1079	1003	927	851
1230	1154	1078	1002	926	850
1229-Jun 25/26	1153-Jun 6/7	1077-May 18/19	1001-Apr 29/30	925-Apr 10/11	849-Mar 22/23
1228	1152	1076	1000	924	848
1227	1151	1075	999	923	847
1226	1150	1074	998	922	846
1225-Jun 24/25	1149-Jun 5/6	1073-May 17/18	997-Apr 28/29	921-Apr 9/10	845-Mar 21/22
1224	1148	1072	996	920	844
1223	1147	1071	995	919	843
1222	1146	1070	994	918	842
1221-Jun 23/24	1145-Jun 4/5	1069-May 16/17	993-Apr 27/28	917-Apr 8/9	841-Mar 20/21
1220	1144	1068	992	916	840
1219	1143	1067	991	915	839
1218	1142	1066	990	914	838
1217-Jun 22/23	1141-Jun 3/4	1065-May 15/16	989-Apr 26/27	913-Apr 7/8	837-Mar 19/20
1216	1140	1064	988	912	836
1215	1139	1063	987	911	835
1214	1138	1062	986	910	834
1213-Jun 21/22	1137-Jun 2/3	1061-May 14/15	985-Apr 25/26	909-Apr 6/7	833-Mar 18/19
1212	1136	1060	984	908	832
1211	1135	1059	983	907	831
1210	1134	1058	982	906	830
1209-Jun 20/21	1133-Jun 1/2	1057-May 13/14	981-Apr 24/25	905-Apr 5/6	829-Mar 17/18
1208	1132	1056	980	904	828
1207	1131	1055	979	903	827
1206	1130	1054	978	902	826
1205-Jun 19/20	1129-May 31/J1	1053-May 12/13	977-Apr 23/24	901-Apr 4/5	825-Mar 16/17

Length
Elapsed
Yrs. of Era
King

	<u>of reign</u>	<u>Yrs. of Era</u>		
Nabonassar	14	0	Feb 27 747	Feb 27
Nadius	2	14	" 23 733	" 23
Chingar and Porus	5	16	" 22 731	" 23
Ilulæus	5	21	" 21 726	" 22
Mardokempad	12	26	" 20 721	" 21
Arheanus	5	38	" 17 709	" 18
1st Interregnum	2	43	" 15 704	" 16
Bilibus	3	45	" 15 702	" 16
Aparanadius	6	48	" 14 699	" 15
Regebel	1	54	" 13 693	" 14
Mesésimordak	4	55	" 12 692	" 13
2nd Interregnum	8	59	" 11 688	" 12
Asaradin	12	67	" 9 680	" 10
Saoduehin	20	88	" 6 667	" 7
Kiniladin	22	100	" 1 647	" 2
Mabopolassar	21	122	Jan 27 625	Jan 28
Nabokatassar	43	143	" 21 604	" 22
Iluordam	2	186	" 11 561	" 12
Nerikasolassar	14	188	" 10 559	" 11
Nabonadius	17	192	" 9 555	" 10

**Persians**

Cyrus	9	209	" 5 538	" 6
Cambyses	8	218	" 3 529	" 4
Darius I	36	226	" 1 521	" 2
Xerxes	21	262	Dec 28 486	Dec 24
Artaxerxes I	41	283	" 17 465	" 18
Darius II	19	324	" 7 424	" 8
Artaxerxes II	46	343	" 2 405	" 3
Ochus	21	389	Nov 21 359	Nov 22
Aroqus	2	410	" 16 338	" 17
Darius	4	412	" 15 336	" 16

**Greeks**

Alexandria	8	416	" 14 332	" 15
Philip Aridaeus	7	424	" 12 324	" 13
Alexander II	12	7	" 10 317	" 11
Ptolemy Lagus	20	19	" 7 305	" 8
P. Philadelphus	38	39	" 2 285	" 3
P. Evergetes I	25	77	Oct 24 247	Oct 25
P. Philopator	17	102	" 18 222	" 19
P. Epiphanes	24	119	" 13 205	" 14
P. Philometor	35	143	" 7 180	" 8
P. Evergetes II	29	178	Sept 29 146	Sept 30
P. Soter	36	207	" 21 117	" 22
P. Dionisius	29	243	" 12 81	Sept 13
Cleopatra	22	272	" 6 52	" 6

**Romans**

Augustus	43	337	Aug 31 30	" 1
Tiberius	22	359	" 20 14 A.D.	Aug 21
Caligula	4	383	" 14 36	" 15
Claudius	14	373	" 13 40	" 14
Nero	14	391	" 11 54	" 11
Vespasian	10	401	" 6 68	" 7
Titus	3	404	" 4 78	" 5
Domitian	15	419	" 3 81	" 4
Nerva	1	420	Jul 30 96	July 31
Trajan	19	439	" " 97	" 31
Hadrian	21	460	" 25 116	" 26
Aelius Antonius	23	483	" 20 137	" 21

*Thoth*. The reign of Nabonassar is reckoned as commencing from *Thoth 1st*, Feb. 26th, B. C. 747. This is the ERA of Nabonassar.

In the following translation of the Table (which is carried down to the time of Dioclesian), if the reader will recollect, that the last column, entitled "Julian equivalent," is no part of the Greek original, but the work of the translator (HENRY BROWNE, A. M., England,) he will be enabled to understand the nature of the Canon.

BABYLONIANS.			
Name.	Length of reign.	Yrs. of era elapsed at beginning of reign.	Julian equivalent.
Nabonassar	14	0	Feb. 26, 747 B.C. I
Nadius	2	14	23, 733
Chinzerand Porus	5	16	22, 731
Ilulæus	5	21	21, 726
Mardokempad	12	26	20, 721
Arkeanus	5	38	17, 709
1st Interregnum	2	43	15, 704
Bilibus	3	45	15, 702
Aparanadius	6	48	14, 699
Regebel	1	54	13, 693
Mesesimordak	4	55	12, 692
2d Interregnum	8	59	11, 688
Asaradin	12	67	9, 680
Saosduchin	20	88	6, 667
Kiniladin	22	100	1, 647
Nabopolassar	21	122	Jan 27, 625
Nabokaiassar	43	143	21, 604
Iluordam	2	186	11, 561
Nerikasolassar	14	188	10, 559
Nabonadius	17	192	9, 555
PERSIANS.			
Cyrus	9	209	Jan. 5, 538
Cambyzes	8	218	3, 530
Darius I.	36	226	1, 522
Xerxes	21	262	Dec. 23, 486
Artaxerxes I.	41	283	17, 465
Darius II.	19	324	7, 424
Artaxerxes II.	46	343	2, 405
Ochus	21	389	Nov. 21, 359
Arogus	2	410	16, 338
Darius III.	4	412	15, 336
GREEKS.			
Alexander	8	416	14, 332
Philip Aridaeus	7	424 (0)	12, 324 II
Alexander II.	12	7	10, 317
Ptolemy Lagus	20	19	7, 305
P. Philadelphus	28	39	2, 285
P. Euergetes I.	25	77	Oct. 24, 247
P. Philopator	17	102	18, 222
P. Epiphanes	24	119	13, 205
P. Philometor	35	143	7, 181
P. Euergetes II.	29	178	Sept. 29, 146
P. Soter	36	207	21, 117
P. Dyonisius	29	243	12, 81
Cleopatra	22	273	5, 52
ROMANS.			
Augustus	43	337	Aug. 29, 30
Tiberius	22	359	20, 14 A.D.
Caius	4	363	15, 36
Claudius	14	373	14, 40
Nero	14	391	10, 54
Vespasian	10	401	7, 68
Titus	3	404	5, 78
Domitian	15	419	4, 81
Nerva	1	420	July 31, 96
Trajan	19	439	31, 97
Hadrian	21	460	26, 116
Ælius Antoninus	23	483	21, 137
Marcus & Commodus.	32	515	15, 160
Severus	25	540	7, 192
Antoninus	4	544	1, 217
Alexander	13	557	June 27, 221
Maximin	3	560	24, 234
Gordian	6	566	23, 237
Philip	6	572	22, 243
Decius	1	573	20, 249
Gallus	3	576	20, 250
Galienus	15	591	19, 253
Claudius	1	592	15, 268
Aurelian	6	598	15, 269
Probus	7	605	14, 275
Carus	2	607	13, 282
Dioclesian	20	627	13, 284

Ends June 9, 302

It will be seen, that the whole interval between Nabonassar and Dioclesian is marked by two eras.

### THE CANON OF PTOLEMY,

#### THE EGYPTIAN ASTRONOMER.

This celebrated Chronological Table is found in the astronomical works of its author, in Greek. It is divided into four sections, furnishing a list of the names of the Babylonian, Persian, Greek (or Macedonian), and Roman monarchs. In the Greek text, which is before us, nothing is given, except the names, the length of the reign, and the number of years elapsed from the Era of Nabonassar, the first Babylonian king. Ptolemy reckons a year as 365 days, the hours and minutes; requisite to make up a true solar year, are disregarded, there being no intercalation to compensate for this loss. The reign of each king is computed from the first day of the Egyptian month

- 1 Thoth
- 2 Paophi
- 3 Athyr
- 4 Choiak
- 5 Tybi
- 6 Mechir
- 7 Phamenoth
- 8 Pharmuthi
- 9 Pachon
- 10 Payni
- 11 Epiphi
- 12 Mesori

27-26 (Washburn pointed out an error in Bc 521)

TABLE  
 EGYPTIAN NEW YEAR (1 THOTH) AND ITS JULIAN EQUIVALENT D.  
 (NOON TO NOON, ASTRONOMICAL TIME -- FROM ~~456~~ B.C. TO ~~240~~ A.D.)

(1460 years)

Sothic Cycle began  
 1322 B.C., July 13/20

1625 240

	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth	B.C. 1 Thoth
Hebrew	748 Feb 22/27	672 Feb 7/11	596 Jan 19/20	520 Dec 31/7	444 <del>Dec 11/12</del>	368 <del>Nov 22/23</del>
1 Nisan	747 Nabonassar	671	595	519	443	367
2 Iyar	746 Era	670	594	518	442	366
3 Sivan	745-Feb 25/26, 27	669-Feb 6/7	593-Jan 18/19	517-Dec 30/31	441-Dec 29/12	365-Nov 22/23
4 Tammuz	744	668	592	516	440 Papyrus "F"	364
5 Ab	743	667	591	515	439 Papyrus "G"	363
6 Elul	742	666	590	514	438	362
7 Tisri	741-Feb 24/25	665-Feb 5/6	589-Jan 17/18	513-Dec 29/30	437-Dec 10/11	361-Nov 21/22
8 Hesvan	740	664	588	512	436	360
9 Kisleu	739	663	587	511	435	359
10 Tebeth	738	662	586	510	434	358
11 Shebat	737-Feb 23/24	661-Feb 4/5	585-Jan 16/17	509-Dec 28/29	433-Dec 9/10	357-Nov 20/21
12 Adar	736	660	584	508	432	356
13 Veadar	735	659	583	507	431	355
	734	658	582	506	430	354
	733-Feb 22/23	657-Feb 3/4	581-Jan 15/16	505-Dec 27/28	429-Dec 8/9	353-Nov 19/20
	732	656	580	504	428	352
	731	655	579	503	427	351
	730	654	578	502	426	350
	729-Feb 21/22	653-Feb 2/3	577-Jan 14/15	501-Dec 26/27	425-Dec 7/8	349-Nov 18/19
	728	652	576	500	424	348
	727	651	575	499	423	347
	726	650	574	498	422	346
	725-Feb 20/21	649-Feb 1/2	573-Jan 13/14	497-Dec 25/26	421-Dec 6/7	345-Nov 17/18
	724	648	572	496	420 Papyrus "H"	344
	723	647	571	495	419	343
	722	646 Feb	570	494	418	342
	721-Feb 19/20	645-Jan 31/1	569-Jan 12/13	493-Dec 24/25	417-Dec 5/6	341-Nov 16/17
	720 Eclipse	644	568	492	416 Papyrus "J"	340
	719 of Moon	643	567	491	415	339
	718 (Max. 19)	642	566	490	414	338
	717-Feb 18/19	641-Jan 30/31	565-Jan 11/12	489-Dec 23/24	413-Dec 4/5	337-Nov 15/16
	716	640	564	488	412	336
	715	639	563	487	411	335
	714	638	562	486	410 Papyrus "K"	334
	713-Feb 17/18	637-Jan 29/30	561-Jan 10/11	485-Dec 22/23	409-Dec 3/4	333-Nov 14/15
	712	636	560	484	408	332
	711	635	559	483	407	331
	710	634	558	482	406	330
	709-Feb 16/17	633-Jan 28/29	557-Jan 9/10	481-Dec 21/22	405-Dec 2/3	329-Nov 13/14
	708	632	556	480	404	328
	707	631	555	479	403	327
	706	630	554	478	402	326
Aries	705-Feb 15/16	629-Jan 27/28	553-Jan 8/9	477-Dec 20/21	401-Dec 1/2	325-Nov 12/13
Taurus	704	628	552	476	400	324
Gemini	703	627	551	475	399	323
Cancer	702	626	550	474	398 Dec.	322
Leo	701-Feb 14/15	625-Jan 26/27	549-Jan 7/8	473-Dec 19/20	397-Nov 30/01	321-Nov 11/12
Virgo	700	624	548	472	396	320
	699	623	547	471 Papyrus "A"	395	319
	698	622	546	470	394	318
Libra	697-Feb 13/14	621-Jan 25/26	545-Jan 6/7	469-Dec 18/19	393-Nov 29/30	317-Nov 10/11
Scorpio	696	620 Eclipse	544	468	392	316
	695	619 of Moon	543	467	391	315
	694	618 (Apr 22)	542	466	390	314
Sagittary	693-Feb 12/13	617-Jan 24/25	541-Jan 5/6	465-Dec 17/18	389-Nov 28/29	313-Nov 9/10
Capricorn	692	616	540	464 Papyrus "B"	388	312
Aquarius	691	615	539	463	387	311
	690	614	538	462	386	310
Pisces	689-Feb 11/12	613-Jan 23/24	537-Jan 4/5	461-Dec 16/17	385-Nov 27/28	309-Nov 8/9
	688	612	536	460 Papyrus "D"	384	308
	687	611	535	459	383	307
	686	610	534	458	382	306
	685-Feb 10/11	609-Jan 22/23	533-Jan 3/4	457-Dec 15/16	381-Nov 26/27	305-Nov 7/8
1 Thoth	684	608	532	456	380	304
2 Paophi	683	607	531	455	379	303
3 Athyr	682	606	530	454	378	302
4 Choiak	681-Feb 9/10	605-Jan 21/22	529-Jan 2/3	453-Dec 14/15	377-Nov 25/26	301-Nov 6/7
5 Tybi	680	604	528	452	376	300
6 Meshir	679	603	527	451 Papyrus "C"	375	299
	678	602	526	450 Ungrad "30"	374	298
	677-Feb 8/9	601-Jan 20/21	525-Jan 1/2	449-Dec 13/14	373-Nov 24/25	297-Nov 5/6
7 Pharmoth	676	600	524 Cambyse	448	372	296
	675	599	523 Tablet	447 Papyrus "E"	371	295
	674	598	522 Lunar Ecl.	446	370	294
8 Pharmuthi	673-Feb 7/8	597-Jan 19/20	521- <del>Dec 31/1</del> Jan	445-Dec 12/13	369-Nov 23/24	293-Nov 4/5
9 Pachon						
10 Payni						
11 Epiphi						
12 Mesori						

*Washburn's definition  
 was found here's simple*

\* This period covers the Sothic Cycle from 1322 B.C. to 139 A.D. Date of 1 Thoth is placed on Julian leap year, ~~1322~~ it occurs a day earlier, and continues for four years. For February 26/26 is Egyptian new year day for years ~~1322~~ to ~~139~~, inclusive.

281	—	189	—	9	105	—	18	29	—	30	52	—	10
277	—	185	—	8	101	—	17	25	—	28	56	—	9
273	—	181	—	7	97	—	16	21	—	28	60	—	8
269	—	177	—	6	93	—	15	17	—	27	64	—	7
265	—	173	—	5	89	—	14	13	—	26	68	—	6
261	—	169	—	4	85	—	13	9-6	—	25	72	—	5
257	—	165	—	3	81	—	12	5-2	—	24	76	—	4
253	—	161	—	2	77	—	11	180-300	—	23	80	—	3
249	—	157	—	1	73	—	10	4	—	22	84	—	2
245	—	153	—	30	69	—	9	8	—	20	88	—	1
241	—	149	—	29	65	—	8	12	—	20	92	—	31
237	—	145	—	28	61	—	7	16	—	18	96	—	30
233	—	141	—	27	57	—	6	20	—	18	100	—	29
229	—	137	—	26	53	—	5	24	—	17	104	—	28
225	—	133	—	25	49	—	4	28	—	16	108	—	27
221	—	129	—	24	45	—	3	32	—	15	112	—	26
217	—	125	—	23	41	—	2	36	—	14	116	—	25
213	—	121	—	22	37	—	1	40	—	13	120	—	24
209	—	117	—	21	33	—	0	44	—	12	124 - 127	—	23
205	—	113	—	20	30	—	0	48-51	—	11	128 - 131	—	22
201	—	109	—	19	27	—	0	48-51	—	10	132 - 135	—	21
197	—	106	—	18	24	—	0	48-51	—	9	136 - 139	—	20
193	—	103	—	17	21	—	0	48-51	—	8	136 - 139	—	20

Wood's  
 9521 error  
 24/5  
 Swengel  
 Vol II 578

9	27	661	573	14	476	21	377	25
5	26	57	69	13	474	20	373	24
741	26	653	65	12	70	19	369	23
7	25	49	561	11	66	18	365	22
733	24	45	57	10	462	17	361	21
9	23	641	31	9	58	16	357	20
5	22	37	30	8	454	15	353	19
721	21	633	29	7	50	14	349	18
17	20	29	28	6	46	13	345	17
713	19	25	27	5	442	12	341	16
9	18	621	26	4	38	11	337	15
5	17	17	25	3	434	10	333	14
701	16	613	24	2	30	9	329	13
97	15	09	23	1	26	8	325	12
693	14	05	22	31	422	7	321	11
89	13	601	21	30	418	6	317	10
25	12	97	20	29	414	5	313	9
681	11	573	19	28	10	4	309	8
77	10	89	18	27	06	3	305	7
673	9	25	17	26	402	2	301	6
669	8	581	16	25	98	1	297	5
	7	577	15	24	484	0	293	4
	6		14	23	90		289	3
	5		13	22	86		285	2
	4		12	21	482			1
	3		11	20				
	2		10	19				
	1		9	18				
	0		8	17				
			7	16				
			6	15				
			5	14				
			4	13				
			3	12				
			2	11				
			1	10				
			0	9				
				8				
				7				
				6				
				5				
				4				
				3				
				2				
				1				
				0				





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