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HE BURMESE AND ARAKANESE CALENDARS.

A. M. B. IRWIN.

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THE BURMESE & ARAKANESE CALENDARS

BY

A. M. B. IRWIN, C. S. I.,

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PREFACE.

In 1901 I published "The Burmese Calendar." It was written in Ireland, and in the preface I admitted that I had not had access to the best sources of information. I can claim that the book was not inaccurate, but it was incomplete. I have since made the acquaintance of the chief Ponnas in Mandalay, and have learned a good deal more on the subject of the calendar, chiefly from U Wizaya of Mandalay and Saya Maung Maung of Kemmendine, to whom my acknowledgments are due. I therefore contemplated issuing a second edition, but when I applied myself to the task of revision I found it was desirable to re-write a good deal of the book, and to enlarge its scope by including the Arakanese Calendar. The title of the book is therefore changed.

My object has been to make the book intelligible and useful to both Europeans and Burmans. This must be my excuse if some paragraphs seem to one class or another of readers to enter too much into elementary details.

I have endeavoured firstly to describe the Burmese and Arakanese Calendars as they are. Secondly, I have shown that an erroneous estimate of the length of the year has introduced errors which have defeated the intentions of the designers of the calendar, and I have made suggestions for reform. Thirdly, I have compiled tables by which English dates may be translated into Burmese dates and vice versa.

Table I for past years and Tables II and III for future years embrace a period of 262 years. For any day within this period the Burmese date equivalent to the given English date, or vice versa, may readily be ascertained by the use of Table IX, combined with Table I or II or III as the case may be. The method is described in the notes on Table IX at page 39.

CORRIGENDA.

Since going to press the following errors have been discovered.

Page 7. Paragraph 35. For 365·2687564814, read 365·2587564814.

Page 8. Paragraph 39. Line 7. To the figures 29·530583 add four more places of decimals, viz., 2147. The figures will read, 29·5305832147.

Same page and paragraph. Line 8. For 5·846, read 58·46.

Page 16. Paragraph 59. For $+\frac{R}{25}$ read $-\frac{R}{25}$

Page 25. Footnote. For 450 read 479.

Page 72. Columns 5 and 6. The figures 97 1 should be one line lower down, opposite the Burmese year 1291.

The figures 100 3 should be one line lower down, opposite the Burmese year 1307.

The figures 98 4 should be one line lower down, opposite the Burmese year 1337.

I must also admit that in paragraphs 81 and 82 the expression "reduce to days" is not quite correct or appropriate, and may make the paragraphs somewhat obscure. The subject is very briefly and incompletely dealt with in Thandeikta.

Also in paragraph 89 I omitted to give a rule for finding the Thokdadein. It is very simple. The rule in Thandeikta is $T = 30m + n - \frac{m}{2} - Y.$

In the particular case considered $m = 4$, and $n = 14$. $\therefore T = 132 - Y.$

A. M. B. I.

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BURMESE & ARAKANESE CALENDARS.

CHAPTER I.

INTRODUCTION.

1. Of natural measures of time, denoted by revolutions and rotations of the heavenly bodies, the best-known and most important are the year, the lunation or synodic month, and the day. The principal artificial measures are the solar month (one-twelfth of a year), the week, the hour, the minute, and the second.

2. For a description of the different measures of the year and month (tropical, sidereal and anomalistic years, synodic, sidereal, anomalistic, tropical and nodical months) the reader is referred to text books of astronomy. Such a description would be too lengthy to insert here.

3. The tropical year, lunation and day vary slightly in length, but none of them is ever an even multiple or sub-multiple of another. Therefore the problem of constructing a calendar to measure time by these three units is a very complex one. In Europe, Julius Cæsar simplified it enormously by abandoning the lunation altogether, and dividing the year into twelve artificial solar months without any remainder. This was not done in Asia, where lunations are still used.

4. Other methods of simplifying the problem are—

(*a*) To reckon by mean or average years and lunations, instead of by the actual revolutions of the earth and moon, the periods of which vary slightly.

(*b*) To postpone fractions of a day, and reckon each lunar month and each year as commencing at midnight, the accumulated fractions being added to the month or year periodically when they amount to one day.

(*c*) To add the accumulated fractions of months and days not exactly when they amount to integers, but at regularly recurring intervals, on the principle of averages and by the aid of cycles which are more or less accurate common multiples of days, lunations and years.

These methods have been adopted to varying extents at different times and in different parts of Asia, as will be seen later.

5. The Burmese calendar is essentially a Buddhist one, but the methods of computing it are derived from Hindu books. A few words about the Hindu calendar are therefore necessary.

6. In paragraph 17 of "The Indian Calendar," by Sewell and Dikshit, is a list of some of the best-known Hindu works on astronomy. The length of the year is differently estimated in different works. The principal ones which seem to have been used in Burma are the Original Surya Siddhanta and the present Surya Siddhanta. The length of the year as given in these two is respectively :—

Original	...	365 days, 6 hours, 12 minutes, 36 seconds.
Present	...	365 days, 6 hours, 12 minutes, 36·56 seconds.

7. Sewell and Dikshit show (at paragraphs 47 and 52) that the Hindus formerly reckoned by mean months and years, but at present by apparent months, while both mean and apparent years are used in different parts of India. The change from mean to apparent reckoning is supposed to have commenced about A. D. 1040, as it is enjoined in a passage in the Siddhanta Sekhara by the celebrated astronomer Sripati, written in or about that year.

8. The Hindus insert an intercalary month at any time of year, as soon as the accumulated fractions amount to one month. In Burma, as we shall see, this is not so. The intercalary month is always inserted at the same time of year, in Burma proper after the summer solstice, in Arakan after the vernal equinox.

ERAS.

9. Burmese astronomers use the Hindu Kali Yug, which commenced in 3102 B. C. (Sewell and Dikshit, page 16).

Gautama Buddha's grandfather, King Einzana, is said to have started a new era in 691 B. C.

The Religious Era dates from 543 B. C., the year in which Gautama is supposed to have attained Nirvana.

In A. D. 78-9 King Thamondarit of Prome is said to have started another, identical with the Indian Saka era.

In A. D. 638-9 the era now in common use was started simultaneously, in Burma by King Poppasaw of Pagan and in Arakan by King Thareyarenu of Dinyawadi dynasty. The same era is current in Chittagong under the name of Magi-San. (Sewell and Dikshit, paragraph 71 and table III).

10. So far as I am aware, no record is extant of any calendars as actually observed either in Burma or in Arakan earlier than the year 1100 of Poppasaw's era (A. D. 1738). Mr. Htoon Chan, B. A., B. L., of Akyab, in his book The Arakanese Calendar, published in 1905, gives the elements of the luni-solar calendar of Arakan for 2,000 years of the current era (A. D. 639 to 2638), but he states that these were compiled during the reign of King Na-ra-a-pa-ya

(A. D. 1742 to 1761), and it is not clear whether the details given for earlier years represent what was actually observed or not.

11. The Arakanese follow the rules of Makaranta, in which fractions are reduced to their lowest terms, and very small remainders are neglected. Intercalary months are regulated by the Metonic cycle of 19 years, the use of which was propounded in the 10th book of Raja-Mathan, a Hindu astronomer.

12. The Makaranta is probably derived from the original Surya Siddhanta, because it defines the length of the year as 365 days, 15 nayi, 31 bizana and 30 kaya (365 days, 6 hours, 12 minutes and 36 seconds), and because it uses mean reckoning. It is probable that the Burmese followed the same rules from Poppasaw's time down to 1100 B. E. (A. D. 1738).

13. The book which is used now in Burma is Thandeikta, the origin of which is involved in some obscurity. According to one account it was written about 1100 B. E., according to another about 1200. At any rate the change from Makaranta to Thandeikta reckoning was not effected all at once. From 1100 to 1200 the intercalary months are still regulated by the Metonic cycle, as in Arakan, but the intercalary days are not placed in the same years as in Arakan, and it is not clear by what rule they were fixed. During that century the growing discrepancy between the civil solar and luni-solar Years attracted attention. Much controversy ensued, the party of reform being led by a princess who was afterwards the chief Queen of King Mindon. The first departure from the rule of the Metonic cycle was made by putting an intercalary month in 1201 instead of in 1202, but the rules of Thandeikta do not appear to have been fully introduced untill 1215.

14. Thandeikta is based chiefly, if not entirely, on the present Surya Siddhanta, but applies its rules only to a limited extent. According to one account the present Surya Siddhanta was not known in Burma until one Bhavani Din, a learned pandit of Benares, brought it to Amarapura in 1148 B. E. (A. D. 1786), and about fifty years later it was translated into Burmese. Thandeikta does not adopt the system of apparent reckoning; mean years and mean months are still used. The practice of placing the intercalary month always next after Wazo and the intercalary day always at the end of Nayon, and only in a year which has an intercalary month, is still adhered to. But the new Surya Siddhanta was followed in small alterations of the length of the year and the month, and the Metonic cycle was abandoned, and intercalary months so fixed as to prevent further divergence between the solar and luni-solar years.

CHAPTER II.

Definitions.

15. *Yet* is a day including the night. *Ne* (the sun) means the day as distinguished from the night. *Nya* means night. But in astronomy *Ne* means a day of the week. The days of the week are denoted by numbers, thus,

1 Sunday.
2 Monday.
3 Tuesday.
4 Wednesday.
5 Thursday.
6 Friday.
0 Saturday.

16. The day is artificially divided as follows :—

1 yet	= 60 nayi	
1 nayi	= 4 pat	= 60 bizana.
1 pat	= 15 bizana	
1 bizana	= 6 pyan	= 60 kaya.
1 pyan	= 10 kaya	
1 kaya	= 12 kana	= 60 anukaya.
1 kana	= 4 naya	= 5 anukaya.

But only the following measures are commonly used in astronomy :—

1 yet	= 60 nayi	Hindu, ghatika.
1 nayi	= 60 bizana	,, pala.
1 bizana	= 60 kaya	,, vipala.
1 kaya	= 60 anukaya	,, prativipala

Therefore

1 nayi	= 24 minutes	= ·4 hour.
1 bizana	= 24 seconds	= ·4 minute.
1 kaya		= ·4 second.
1 anukaya		= ·006 second.

And

1 hour = 2·5 nayi.
1 minute = 2·5 bizana.
1 second = 2·5 kaya.

17. For ordinary use the English divisions of a day have practically ousted the Burmese ones, at least in the towns, and the word "nayi" has come to mean "hour." The words "minute" and "second" have been engrafted into the Burmese language.

18. *La* (moon) is a mean lunation, *i.e.* the average period from new moon to new moon. *Sandra Matha* also means a lunation; *Thuriya Matha* means a solar month $= \frac{1}{12}$ of a year.

19. *Labyi* is full moon. *Lagwè* is new moon.

20. *Ata Yet* or *Ata Ne* is the solar New Year's Day, or the day on which the mean sun enters the sign Meiktha (Aries).

21. *Haragon* (Hind. *Ahargana*) or *Thawana* is the total number of days elapsed from the beginning of the era, or from any other fixed point which may be taken as a starting point for calculations, to a given day.

22. *Kyammat* is an aggregate of units, each of which is the 800th part of a day (= 108 seconds = 270 kaya). This arbitrary unit is obviously a rude and imperfect substitute for decimal fractions.

23. *Didi* (Hind. *Tithi*) is the 30th part of a mean lunation, or the average time in which the mean moon increases her longitudinal distance from the mean sun by 12 degrees.

24. *Kaya* is the difference between total days and total didi in any given period. It must not be confounded with kaya, the measure of time, ·4 of a second (paragraph 16).

25. *Awaman* is the remainder in the arithmetical operation of reduction of days to didi or vice versa. In other words *awaman* is the numerator of a fraction of kaya.

26. *Yet lun* is the epact or moon's age at midnight of solar new year's day, expressed in whole didi.

27. *Adimath* (Hind. *adhika masa*) means both an intercalated month and the total intercalated months from the beginning of the era or any other fixed point to a given point of time. *Adimath thetha* means the epact of the total intercalated months, or fraction of a month, which accumulates year by year up to one month.

28. *La lun* is the number of whole months by which the total solar years expired during the era exceed the total luni-solar years expired during the era. When solar new year's day falls in Tagu the la lun is 0; when it falls in Kason the la lun is 1; and so on. If the solar and luni-solar years were perfectly adjusted there would never be any la lun.

29. *Thokdadein* at midnight of any given day is the number of days expired from and excluding Ata Yet.

30. *Thagayit* is the number of the year of the Burmese era. It denotes expired years, not current years as in Europe. That is to say, the era began at the commencement of the year 0. The first of January 1900 was Burmese 1261 Pyatho waxing 2nd, which means the second day of the month of Pyatho after the completion of 1261 years of the Burmese era.

31. *Ratha* or *Hnit Kywin* is Thagayit minus a constant. In other words, a fixed number is deducted from thagayit in order to shorten calculations, and the difference is termed *ratha*.

32. *Wa* is the Buddhist lent, which extends from the full moon of Wazo to the full moon of Thadingyut.

33. *Wa-tat* (lent repeated) is an expression applied to the Burmese leap year. *Wa-ngè-tat* means that the year has an intercalary month without any intercalary day. *Wa-gyi-tat* means that it has both intercalary month and intercalary day.

CHAPTER III.

General Description of the Calendar.

34. According to the Surya Siddhanta a maha-yug of

4,320,000 years contains
1,577,917,828 days.
1,603,000,080 didi.
25,082,252 kaya.
51,840,000 solar months.
53,433,336 lunar months.
1,593,336 adimath.

The greatest common measure of these numbers is 4. Dividing by 4, we get

in 1,080,000 years.
394,479,457 days.
400,750,020 didi.
6,270,563 kaya.
12,960,000 solar months.
13,358,334 lunar months.
398,334 adimath.

35. The length of a mean year, deduced from the above figures, is 365·2687564814 days

= 365 yet 15 nayi 31 bizana 31 kaya 24 anukaya.
= 365 days 6 hours 12 minutes 36·56 seconds

The original Surya Siddhanta neglected the fraction of a day beyond five decimal points, or in other words omitted 1 kaya 24 anukaya = ·36 second.

36. The year as thus defined is about 1 minute 12 seconds less than the mean anomalistic year as found by modern science, 3 minutes 27 seconds greater than the mean sidereal year, and nearly 24 minutes greater than the mean tropical year.

37. The Burmese zodiac is divided, as in Europe, into 12 signs ("rathi") each rathi into 30 degrees ("intha," Hindu "amsa"), each degree into 60

minutes ("leikta") and each minute into 60 seconds, ("wileikta"). The names of the signs are:—

	Burmese.	*Hindu.*	*European.*
1.	Meiktha.	Mesha.	Aries.
2.	Pyeiktha.	Vrishabha.	Taurus.
3.	Medon.	Mithuna.	Gemini.
4.	Karakat.	Karka.	Cancer.
5.	Thein.	Simha.	Leo.
6.	Kan.	Kanya.	Virgo.
7.	Tu.	Tula.	Libra.
8.	Pyeiksa.	Vrischika.	Scorpio.
9.	Danu.	Dhanus.	Sagittarius.
10.	Makara.	Makara.	Capricornus.
11.	Kon.	Kumbha.	Aquarius.
12.	Mein.	Mina.	Pisces.

38. In Burma the zero of celestial longitude does not move with the precession of the equinoxes as in Europe. The year theoretically begins at the moment when the sun enters the sign Meiktha, but as the year is slightly longer than the mean sidereal year, the first point of Meiktha (the zero of longitude) is really moving among the stars away from the equinox, faster than the real precession. The rate of precession of the equinoxes is about 50″ per annum; the rate at which the first point of Meiktha diverges from the equinox is about 59″ per annum.

39. The length of a mean lunar month, deduced from the figures in paragraph 34, is 29·530587946 days

= 29 yet 31 nayi 50 bizana 6 kaya 52·58 anukaya.
= 29 days 12 hours 44 minutes 2·7985344 seconds.

Makaranta, probably following the original Surya Siddhanta, takes the mean lunation at $\frac{692}{703} \times$ 30 days

= 29·530583 days.
= 29 yet 31 nayi 50 bizana 5 kaya 5·846 anukaya.
= 29 days 12 hours 44 minutes 2·38975 seconds.

40. The mean lunation being a small fraction over 29½ days, the Burmese ordinary months contain 29 and 30 days alternately. Their names are:—

		Days.
1.	Tagu	29
2.	Kason	30
3.	Nayon	29
4.	Wazo	30
5.	Wagaung	29
6.	Tawthalin	30
7.	Thadingyut	29
8.	Tazaungmon	30
9.	Nadaw	29
10.	Pyatho	30
11.	Tabodwè	29
12.	Tabaung	30
	Total ...	354

41. The remainder of the luni-solar year is made up by inserting an intercalary month at intervals. Approximately seven intercalary months are required in nineteen years. Makaranta inserts exactly seven months every nineteen years. Thandeikta makes corrections for the small fractions remaining in the cycle of Meto. The intercalary month always has 30 days. In Arakan it is inserted between Tagu and Kason, and is called Second Tagu. In Burma proper it is inserted between Wazo and Wagaung, and is called Second Wazo.

42. It is obvious that the intercalary month not only corrects the length of the year, but also corrects the accumulating error of the month to the extent of half a day. In other words, it causes the first day of every alternate succeeding month to fall one day later than it would fall if the intercalary month had not been inserted. The average length of the month is further corrected by adding a day to Nayon at irregular intervals—a little more than seven times in two cycles, 38 years. The intercalary day is never inserted except in a year which has an intercalary month.

43. The days of the month are reckoned in two series, waxing and waning. The 15th of the waxing is the civil full moon day ("labyi"). The civil new moon day is the last day of the month (14th or 15th waning, as the case may be), and is called "lagwè" (moon disappears). It is frequently in advance of the real new moon, as will be seen later.

44. Though Tagu is nominally the first month in the year, it is sometimes the last. The Thagayit number is applied to the solar year, consequently every year except watat year has 11 ambiguous days, bearing identical month names and day numbers, at its beginning and at its end. The latter are distinguished by the word "hnaung" prefixed. Thus B. E. 1257 Tagu waning 10th was April 18th, 1895, and B. E. 1257 Hnaung Tagu waning 10th was April 6th, 1896. Again, 14th April 1898 from midnight to 1-51-36 P. M. was B. E. 1259 Hnaung Tagu waning 9th. The same day from 1-51-36 P.M. to midnight was B. E. 1260 Tagu waning 9th.

45. Besides the 12 signs of the zodiac, the ecliptic is also divided into 27 nekkats (Hind. nakshatra), representing the 27 days of the sidereal month. The Pali names of the nekkats are almost identical with the Sanskrit names of the nakshatras.

46. The actual length of the mean sidereal month is 27·321661 days. The fraction gave rise in India to three different systems of reckoning the amount of celestial longitude covered by each nakshatra. The following list of nekkats is taken from Thandeikta. Athawani commences at longitude 350°. The spaces in this list differ greatly from both the Indian systems of unequal spaces. The most modern system in India is that of equal spaces, 13° 20′ being assigned to each nekkat.

No.	Burmese name.	Hindu name.	Extent.	Long. of last pt.
1.	Athawani ...	Asvini ...	18°	8°
2.	Barani ...	Bharani ...	10	18
3.	Krattiga ...	Krittika ...	16	34
4.	Rawhani ...	Rohini ...	12	46
5.	Migathi ...	Mrigasiras ...	14	60
6.	Adara ...	Ardra ...	5	65
7.	Ponnapokshu ...	Punarvasu ...	27	92
8.	Poksha ...	Pushya ...	14	106
9.	Athaleiktha ...	Aslesha ...	12	118
10.	Maga ...	Magha ...	11	129
11.	Prokpa Palgonni ...	Purva Phalguni ...	16	145
12.	Oktra Palgonni ...	Uttara Phalguni ...	9	154
13.	Hathada ...	Hasta ...	10	164
14.	Seiktra ...	Chitra ...	15	179
15.	Thwati ...	Svati ...	13	192
16.	Withaka ...	Visakha ...	21	213
17.	Anurada ...	Anuradha ...	11	224
18.	Zeta ...	Jyeshtha ...	5	229
19.	Mulathan ...	Mula ...	13	242

No.	Burmese name.	Hindu name.	Extent.	Long. of last pt.
20.	Prokpa Than ...	Purva Ashadha ...	15	257
21.	Oktra Than ...	Uttara Ashadha ...	5	262
22.	Tharawan ...	Sravana ...	13	275
23.	Danatheikda ...	Dhanishtha ...	12	287
24.	Thattabeiksha ...	Satataraka ...	26	313
25.	Prokpa Parabaik ...	Purva Bhadrapada	10	323
26.	Oktra Parabaik ...	Uttara Bhadrapada	16	339
27.	Rewati ...	Revati ...	11	350

47. The days of the week are named after the sun, moon, and five planets, as in India and Europe, and are generally indicated by numbers.

Day.	Burma.	India.
1. Sunday ...	Taninganwe Ne ...	
2. Monday ...	Taninla Ne ...	
3. Tuesday ...	Inga Ne ...	Angaraka
4. Wednesday ...	Buddahu Ne ...	Budha
5. Thursday ...	Kyathabade Ne ...	Vachaspati
6. Friday ...	Thaukkya Ne ...	Sukra
0. Saturday ...	Sane Ne ...	Sani

48. The Burmese astronomical day begins at midnight, the civil day at sunrise.

49. The following is a translation of one month of the Burmese Thandeikta calendar for forty years, published by Saya Wizaya of Mandalay. The longitudes of the sun, moon and planets are given in signs, degrees and minutes. Rahu is the moon's ascending node, and is regarded as a dark planet which causes eclipses.

English year and month.	1902 January														
English day.	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Burmese year and month.	1263						Pyatho waxing.								
Burmese day.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Week day ...	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5
Sun	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9
	26	27	28	29	0	1	2	3	4	5	6	7	8	9	10
	4	5	7	9	10	11	12	13	15	17	19	20	21	22	23
Moon ...	8	9	9	10	10	10	11	11	0	0	1	1	2	2	3
	24	6	19	2	16	29	13	27	11	26	10	24	8	23	6
	15	52	42	48	9	45	26	40	49	26	25	44	57	2	57
Didi ...	14	0	1	2	3	4	5	7	8	9	10	11	12	13	14
	50	48	47	48	49	52	57	2	7	14	20	27	33	38	42
Nekkat.	19	20	21	22	23	24	25	26	0	1	3	4	5	6	7
	49	45	43	42	42	43	46	49	53	57	1	6	10	13	16
Mars ...	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	13	13	14	15	16	17	17	18	19	20	20	21	22	23	24
	7	54	41	28	15	1	48	34	20	7	53	40	27	10	1
Mercury.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	3	5	7	8	10	11	13	15	16	18	19	21	22	24	25
	46	26	5	43	21	58	34	10	44	16	46	14	40	6	30
Jupiter.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
	15	29	43	57	10	24	38	52	5	19	33	47	1	14	28
Venus ...	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	4	5	5	5	6	6	6	6	7	7	7	7	7	7	7
	36	3	27	48	6	21	35	48	0	11	22	31	38	44	43
Saturn.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	25	25	25	26	26	26	26	26	26	26	27	27	27	27	27
	52	59	7	14	21	29	37	44	52	59	7	14	22	29	37
Rahu ...	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16
	6	2	59	56	53	50	47	44	41	38	35	32	28	25	22

(1) 0
2
4
5
4
Night, after 4th beat.

1902								February						
24	25	26	27	28	29	30	31	1	2	3	4	5	6	7
Pyatho waning.														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
24	25	27	28	30	30	31	32	33	34	35	36	37	38	39
3	4	4	5	5	5	6	6	7	7	7	8	8	9	9
20	4	17	0	12	25	7	19	1	13	26	8	20	2	15
40	7	18	16	57	26	43	51	55	57	0	18	35	54	36
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
46	48	49	49	48	46	42	36	31	26	22	17	14	11	9
8	9	10	11	12	13	14	14	15	16	17	18	19	20	21
18	18	17	16	13	9	4	59	53	47	42	36	31	28	25
9	9	9	9	9	9	9	10	10	10	10	10	10	10	10
24	25	26	27	28	28	29	0	1	1	2	3	4	5	5
49	37	25	13	0	48	36	23	11	58	46	33	20	7	54
9	9	9	10	10	10	10	10	10	10	10	10	10	10	10
26	28	29	0	1	2	3	4	5	6	7	8	9	9	9
51	9	23	36	44	49	50	51	51	47	36	22	5	30	56
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
5	5	6	6	6	6	7	7	7	7	8	8	8	8	8
42	56	10	24	38	52	6	20	34	48	2	16	30	44	58
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
7	7	7	6	6	6	5	5	5	4	4	3	3	2	2
36	26	11	54	34	13	51	29	7	44	18	47	13	37	1
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
27	27	27	28	28	28	28	28	28	28	28	28	29	29	29
44	51	58	5	12	18	25	32	38	45	52	58	5	12	19
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
16	16	16	16	16	16	16	15	15	15	15	15	15	15	15
19	16	12	9	6	3	0	56	53	50	47	44	41	38	34

(4) 6 1 0 0 8 — Day, after 1st beat.

(3) 0 2 8 1 7 — Day, after 2nd beat.

50. The difference in time between the entry of the apparent sun and that of the mean sun into the sign Meiktha is called in India Sodhya, and in Burma Thingyan. The length of this period is fixed at 2 yet 10 nayi and 3 bizana (2 days 4 hours 1 minute and 12 seconds). There is a fable about the King of the Nats coming down to reside on earth during the Thingyan. The day on which the Thingyan commences is called Thingyan Kya, and the day on which it ends Thingyan Tet.

51. There have been differences of opinion as to whether the solar year commences at Thingyan Tet or at Thingyan Kya, but the actual practice for many years has been that it commences at Thingyan Tet. This is consonant with the use of mean years in all calculations.

CHAPTER IV.

METHODS OF CALCULATION.

52. The rules of both Makaranta and Thandeikta commence with the calculation of hnit-bo and yet-bo. Hnit-bo are the total lunations, with fraction, and total days, with fraction, expired at the moment when a given solar year ends, and the day of the week on which solar new year's day falls. Yet-bo are similar figures for midnight of any given day in any given year.

53. In this chapter the following symbols are used:—

R	represents	Ratha or Hnit kywin.
H	,,	Haragon or Thawana.
Ky	,,	Kyammat.
D	,,	Didi.
Y	,,	Yet lun.
Ka	,,	Kaya.
W	,,	Awaman.
S. M.	,,	Solar months.
L. M.	,,	Lunar months.
Ad	,,	Adimath.
AT	,,	Adimath thetha.
T	,,	Thokdadein.
m	,,	the expired months of the current year, counting from and including Tagu.
n	,,	the given day of the month.

HNIT BO.

54. Thandeikta calculations start from 1100 B. E. Thagayit − 1100 = Ratha. Makaranta calculations start from 0 B. E., Poppasaw's epoch. But there is a second Makaranta method, starting from 798 B. E., the epoch of Mohnyin, King of Ava. Thagayit − 798 = Ratha by this method.

55. By Thandeikta, the total days expired at the end of the year R are

$$\frac{292207R + \frac{R}{193} + 17742}{800}$$

292000 is the kymmat of 365 days. 207 is the kyammat of 15 nayi 31 bizana

and 30 kaya. $\frac{1}{193}$ is the kyammat of 1 kaya and 24 anukaya (·56 second) which forms the difference between the Thandeikta and Makaranta years. By the formula given above the difference is disregarded from 1100 to 1292 B. E. In 1293 the end of the solar year is postponed by one kyammat unit (108 seconds or 270 kaya). The constant 17742 kyammat equals 22 yet 10 nayi and 39 bizana, the time which elapsed from 1099 Tabaung Lagwè midnight to the moment when the mean sun entered Meiktha, when the 1100th year expired.

56. By Makaranta the fraction $\frac{1}{193}$ is disregarded, and omitted altogether. R=Thagayit, and the total days expired are

$$\frac{292207\,R + 373}{800}$$

The constant 373 equals 27 nayi 58 bizana and 30 kaya, the time which elapsed from Kali Yug 3738 Tabaung Lagwè midnight to the moment when the mean sun entered Meiktha and the year 0 of Poppasaw's era (Kali Yug 3739) commenced. By the second Makaranta method, in which Ratha=Thagayit−798, the constant is 8759.

57. The Haragon or Thawana is the quotient of

$$\frac{292207R + \frac{R}{193} + 17742}{800}$$

plus 1, because the haragon includes new year's day. The remainder is the portion of new year's day which belongs to the old year. 800 minus the remainder is the Ata Ne Kyammat.

58. The day of the week, by Thandeikta, is the remainder of $\frac{H-2}{7}$ because Ata Ne in 1100 B. E. was Saturday, and its haragon was 23. 21 divided by 7 gives remainder 0, which represents Saturday. By either of the Makaranta methods the remainder of $\frac{H}{7}$ is the day of the week. In 0 B. E. Ata Ne was Sunday, and its haragon was 1. In 798 B. E. Ata Ne was Wednesday, and its haragon was 11; remainder 4.

59. The kaya, or excess of didi over days, is by Thandeikta the quotient of

$$\frac{11H + \frac{R}{25} + 176}{692}$$

and the remainder is the awaman. The ratio 11 : 692 is the difference between unity and 703 : 692, which is an approximation to 400,750,020 : 394,479,457,

the Surya Siddhanta ratio of the length of a day to the length of a didi. (Para. 34). The fraction $\frac{R}{25}$ represents the 0·000004731 day, by which a Thandeikta mean lunation exceeds a Makaranta mean lunation. (See para. 39). The constant $\frac{176}{692}$ day = 15 nayi, 15 bizana and 45 kaya, the time which elapsed from the moment of mean new moon to midnight of Tabaung Lagwè 1099 B. E. By Makaranta the kaya is the quotient of

$$\frac{11H + 650}{692}$$

the constant $\frac{650}{692}$ day being = 55 nayi, 28 bizana and 35·5 kaya, the time which elapsed from the moment of mean new moon to midnight of Tabaung Lagwè 3738 Kali Yug. By the second Makaranta method the constant is $\frac{48}{692}$.

60. Haragon + kaya = total didi. Didi divided by 30 gives quotient Sandra Matha, and remainder yet lun or epact at midnight of solar new year's day expressed in whole didi, the fraction of the epact being $\frac{W}{692}$.

61. Thandeikta rules for hnit-bo end here. Makaranta adds the following:—$\frac{7 \text{ L. M.}}{235}$ gives quotient adimath and remainder adimath thetha.

$$\text{L. M.} - \text{Ad} = \text{S. M.}$$

Divide solar months by 12. The quotient is the year or Ratha with which the calculations commenced. If there is no remainder the Ata Ne or Thingyan Tet falls in Tagu. If the remainder is 1 it falls in Kason. This remainder is the La lun.

62. The reason why this rule is not in Thandeikta is evident. The ratio $\frac{7}{235}$ is the ratio of the Metonic cycle, which Thandeikta does not follow. It is the error of this ratio with reference to the Burmese solar year that causes Ata Ne to fall in Kason instead of Tagu. If the adimath were always adjusted in harmony with the solar year there would be no la lun.

63. If Thandeikta hnit-bo were calculated from Poppasaw's epoch, without cutting off 1100 years, the constant for the haragon would be 442 instead of 373. The added 69 kyammat consist of two items, 25 and 44. 25 represents the accumulated error of 1 kaya and 24 anukaya per year during 4839 years, from the beginning of the Kali Yug to 1100 B. E. We have seen (para. 55) that the error amounts to one kyammat in 193 years. $193 \times 25 = 4825$. The 44 kyammat represent the difference between Amarapura time and Lanka time which is used in Hindu calculations.

64. The following table of Thandeikta hnit-bo is copied from the Thandeikta Calendar for forty years, published by Saya Wizaya of Mandalay.

THANDEIKTA HNIT BO FOR THAGAYIT 1230 to 1269.

Thagayit.	Kali Yug.	Hnit Kywin.	Kyammat.	Thawana.	Awaman.	Kaya.	Yet lun.	Sandra masa.	Ata.
1230	4969	130	148	47506	277	755	21	1608	2
1231	4970	131	741	47872	151	761	3	1621	4
1232	4971	132	534	48237	14	767	14	1633	5
1233	4972	133	327	48602	569	772	24	1645	6
1234	4973	134	120	48967	432	778	5	1658	0
1235	4974	135	713	49333	306	784	17	1670	2
1236	4975	136	506	49698	169	790	28	1682	3
1237	4976	137	299	50063	32	796	9	1695	4
1238	4977	138	92	50428	587	801	19	1707	5
1239	4978	139	685	50794	461	807	1	1720	0
1240	4979	140	478	51159	324	813	12	1732	1
1241	4980	141	271	51524	187	819	23	1744	2
1242	4981	142	64	51889	50	825	4	1757	3
1243	4982	143	657	52255	616	830	15	1769	5
1244	4983	144	450	52621	479	836	26	1781	6
1245	4984	145	243	52985	342	842	7	1794	0
1246	4985	146	36	53350	205	848	18	1806	1
1247	4986	147	629	53716	79	854	0	1819	3
1248	4987	148	422	54081	634	859	10	1831	4
1249	4988	149	215	54446	497	865	21	1843	5
1250	4989	150	8	54811	360	871	2	1856	6
1251	4990	151	601	55177	233	877	14	1868	1
1252	4991	152	394	55542	96	883	25	1880	2
1253	4992	153	187	55907	651	888	5	1893	3
1254	4993	154	780	56273	525	894	17	1905	5
1255	4994	155	573	56638	388	900	28	1917	6
1256	4995	156	366	57003	251	906	9	1930	0
1257	4996	157	159	57368	114	912	20	1942	1
1258	4997	158	752	57734	680	917	1	1955	3
1259	4998	159	545	58099	543	923	12	1967	4
1260	4999	160	338	58464	406	929	23	1979	5
1261	5000	161	131	58829	269	935	4	1992	6
1262	5001	162	724	59195	143	941	16	2004	1
1263	5002	163	517	59560	6	947	27	2016	2
1264	5003	164	310	59925	561	952	7	2029	3
1265	5004	165	103	60290	424	958	18	2041	4
1266	5005	166	696	60656	298	964	0	2054	6
1267	5006	167	489	61021	161	970	11	2066	0
1268	5007	168	282	61386	24	976	22	2078	1
1269	5008	169	75	61751	579	981	2	2091	2

YET BO.

65. The total solar months expired = 12R + m. The Adimath, by Thandeikta, is the quotient of

$$\frac{28\,\text{S. M.} + \frac{R}{475} + 690}{911}$$

and the remainder is Adimath thetha. The ratio 28 : 911 is the difference between unity and 939 : 911, which is an approximation to 13,358,334 : 12,960,000, the Surya Siddhanta ratio of the length of a mean solar month to the length of a mean lunar month (para. 34). $\frac{R}{475}$ is a correction to obtain a closer approximation. The constant 690 is the adimath thetha at the end of the 1100th year of Poppasaw's era.

66. Makaranta not only omits the correction $\frac{R}{475}$, but takes a slightly rougher approximation of the Surya Siddhanta ratio, *viz.*, 940 : 912, because this ratio can be reduced to lower terms, namely 235 : 228. This is the ratio of the Metonic cycle; nineteen years contain 235 lunar months, 228 solar months.

67. Total lunar months (L.M.) = S.M. + Ad. D = 30 L.M. + n − 1, that is to midnight preceding the day n. Kaya, by Thandeikta, is the quotient of

$$\frac{11D - \frac{R}{25} + 176}{703}$$

and the remainder is awaman. H = D − Ka. The day of the week is the remainder of $\frac{H-2}{7}$.

68. The kyammat of the whole period is $800H - \frac{R}{193} - 17742$. Divide this by 292207. The quotient is Ratha, and the remainder is kyammat-pon, or the kyammat of the fraction of a year elapsed during the current solar year. Divide kyammat-pon by 800. The quotient is Thokdadein, and the remainder is Ata kyammat.

69. Makaranta, by using the Metonic cycle, takes a different method of arriving at the total didi, and at the same time ascertains the intercalary months and days. The watat years are first found by the Metonic cycle, and then the yet-bo for midnight preceding the Labyi of Second Wazo of each watat year are calculated, as follows.

70. Divide the year by 19. The quotient is the expired cycles. If the remainder is 2, 5, 7, 10, 13, 15 or 18 there is an intercalary month. These alone are the years with which we are concerned at present.

71. The expired cycles multiplied by 7050 (235 × 30) = the total didi of the completed cycles, ending on the Lagwè of Tabaung. To find the didi of the remaining years and fraction, first multiply these years by 12. Add 4 for the

months of Tagu, Kason, Nayon and First Wazo, and one month for each watat year expired during the cycle, thus:—

In the	first	watat	year	of each cycle	add 4
,,	second	,,	,,	,,	5
,,	third	,,	,,	,,	6
,,	fourth	,,	,,	,,	7
,,	fifth	,,	,,	,,	8
,,	sixth	,,	,,	,,	9
,,	seventh	,,	,,	,,	10

Multiply the total months by 30 and add 14 didi of Second Wazo. Add this total to the total didi of the completed cycles. The result is the total didi of the whole period from the beginning of the era to the midnight preceding the Labyi of Second Wazo of the given year.

72. To reduce these didi to days, Kaya is the quotient of $\frac{11D+650}{703}$ and the remainder is the awaman.

$$H = D - Ka.$$

Divide H by 7. The remainder indicates the day of the week on which the Labyi of Second Wazo falls.

73. The intercalary day is determined by the changes in the awaman from watat year to watat year. These changes can easily be found without calculating the haragon in full for each watat year. In the arithmetical operation expressed by $\frac{11D+650}{703}$ it is obvious that the change in the remainder depends solely on the increment of total didi. When the interval from watat to watat is two years, the increase of total didi is $25 \times 30 = 750$. Multiply this by 11 and divide by 703; the remainder is 517. Therefore in every case of two years' interval the awaman is found by simply adding 517 to the last preceding awaman and then subtracting 703 if the total is 703 or greater. In like manner in every case of three years' interval the awaman is found by adding 259 and subtracting 703 if the total is 703 or greater.

74. A still easier method of calculating the awaman for a long period is this: the awaman for any watat year is obtained from the awaman for the corresponding year in the last preceding cycle by adding 220, or subtracting 483 if the preceding one is 483 or greater.

75. The kaya found from the equation in paragraph 72 is subtracted from didi. Hence, when the addition of 517 or 259 does not raise the awaman to 703, the increase of the haragon is greater by 1 than when the awaman becomes 703 or more, and has to be reduced by subtracting 703. A little calculation will show that the increase of the haragon in 25 months is 738 when 703 is subtracted and 739 when 703 is not subtracted. The corresponding figures for 37 months are 1092 and 1093.

76. Hence the rule. When the awaman of Second Wazo Labyi is less than in the last preceding watat year Nayon has 29 days. When the awaman is greater than in the last preceding watat year Nayon has 30 days.

77. The day of the week on which the Labyi of Second Wazo falls in any watat year may be deduced from the last preceding watat year by dividing the increase of the haragon by 7. The result may be expressed thus:—

Interval, years.	Days in Nayon.	Increase of haragon.	Increase of week day.
2	29	738	3
2	30	739	4
3	29	1092	0
3	30	1093	1

78. From the 1st of Tagu to the 15th of Second Wazo is in a wa-ngè-tat year 132 days, in a wa-gyi-tat year 133 days. Dividing by 7, we find that in a wa-ngè-tat year the 1st of Tagu falls one day later in the week than the Labyi of Second Wazo; in a wa-gyi-tat year they fall on the same day of the week. The Table in paragraph 77, therefore, gives the sequence of luni-solar New Year's Days from watat year to watat year, with this difference, in the case of New Year's Day the column "Days in Nayon" refers to the former watat year; in the case of Second Wazo it refers to the latter watat year.

THANDEIKTA WATAT

79. Thandeikta does not give any clear and invariable rule for determining which years shall be watat, and the reason probably is that the Surya Siddhanta does not contemplate the Burma practice of placing the intercalary month always near the summer solstice. The Burmese sayas who framed the Thandeikta rules were thus thrown on their own wits for guidance, and the result is that several different tests are applied.

80. Dividing the number of days in one-fourth of a Maha Yug (394,479,457) by the number of adimath in the same period (398,334), we find that the average time from one intercalary month to the next should be 990 yet 19 nayi, 24 bizana, 1 kaya and 16·269 anukaya. Consequently it is laid down in Thandeikta that the period from one intercalary month to the next is 990 yet and 19 nayi.

81. To apply this principle, one method is to reduce the adimath thetha to days; another is to reduce the yet-lun to days. In each case the resulting days being subtracted from 990 days and 19 nayi, the difference is the number of days to run from solar new year's day before the adimath thetha amounts to a full month, or the yet-lun amounts to a full month, as the case may be. It is not expressly stated that an intercalary month should be inserted if the full

number of days expires before the Labyi of Wazo, but it may be inferred that that is what is meant.

82. The rule for reducing adimath thetha to days is to multiply the adimath thetha by 100 and divide by 92. The rule for reducing yet-lun to days is

$$H = 33Y + \frac{W}{21} - \frac{44 + Ky}{24}.$$

83. A third rule is that every yet-lun pyo year should be a watat year. Yet-lun pyo means that the didi-epact, which has been increasing every year by about 11, amounts to 30 or more, when 30 is deducted from it, one lunar month is added, and the total lunar months exceed those reckoned to the end of the previous year by 13 instead of 12.

84. A fourth rule is that the Labyi on the day following which Lent begins must fall on a day when the moon is within the nekkat Athanli, that is, between longitude 266° 40′ and 270°. Athanli is a Pāli name for the month of Wazo. It is not one of the 27 lunar nekkats.

85. None of these rules seems to have been consistently followed since 1215 B. E. The third is contradictory to the fourth, for when the yet-lun exceeds 19 the full moon of the third succeeding month never reaches Athanli. This point is further discussed in para. 112. The actual practice since 1215 has been that watat has always occurred either in yet-lun pyo year, or in the year preceding yet-lun pyo when the yet-lun amounted to 27, 28 or 29. It is to be observed that under this practice although the rule of Athanli is fulfilled in watat years, yet there are many common years in which the moon's longitude on the Labyi of Wazo falls short of Athanli, namely every year in which the yet-lun is 20, 21, 22, 23, 24, 25 or 26.

THANDEIKTA YET-NGIN.

86. For determining the places of intercalary days there are three rules given in Thandeikta. One is that every year in which the kaya increases by 5 (not 6) or in other words every awaman pyo year, should have an intercalary day. As thus stated the rule is impossible, for awaman pyo years are frequently not watat years, and yet-ngin never occur except in watat years. If the awaman of watat years alone be considered, the rule is practically the Makaranta rule stated in paragraph 76, and this has certainly not been followed in Burma proper since 1100 B. E.

87. Another rule is based on the average time which should elapse between one yet-ngin and the next. Taking the figures for a quarter Maha Yug in paragraph 34, the total days in 13,358,334 Burmese months, if there were no intercalary days, would be 30 (13,358,334) − ½ (12,960,000), or 394,270,020 days.

Subtracting this number from the total days, *viz*: 394,479,457, there remain 209,437 intercalary days. Dividing the total days by the intercalary days we obtain the quotient 1883·5, the average period from one intercalary day to the next. The rule then is that the quotient of

$$\frac{(H + 720)\,(1 + \frac{1}{3951})}{1884}$$

is the number of intercalary days included in the given H, and the remainder is the number of days since the last intercalary day fell due. The wagyitat since 1250 B. E. agree with this rule. In earlier years they do not.

88. The third rule is to try whether the beginning of the 15th didi of Second Wazo brings the moon within Athanli. If the intercalary month does not suffice to bring the full moon within Athanli, an intercalary day may do so, because the moon moves every day through about 13° of longitude, and the difference of the moon's longitude between one full moon and the next is about 29°.

89. To find the moon's longitude, first find the Thokdadein, *i.e.* the number of days expired from midnight of solar new year's day to midnight of 14th Waxing Second Wazo. From the Thokdadein, the sun's longitude and the difference of longitude between the sun and the moon are separately calculated. The sum of these two is the moon's longitude.

90. A complete circle of 360 degrees consists of 21600 minutes. Therefore, if Ky be Ata Kyammat, the sun's longitude, expressed in minutes, at the midnight indicated by thokdadein T, bears the same ratio to 21600 as 800T + Ky bears to 292207.

$$\therefore \quad \text{Sun's long.} \times 292207 = 21600\,(800T + Ky).$$

Now 21·6 happens to be a very close approximation to a factor of 292207. The result of dividing the latter by the former is $13528\frac{11}{108}$. The last equation, therefore may be written

$$\text{Sun's long.} \times 13528\frac{11}{108} = 1000\,(800T + Ky).$$

Thandeikta disposes of the fraction $\frac{11}{108}$ by subtracting 6T from the other side of the equation, and the Sun's longitude, expressed in minutes, is taken to be

$$\frac{1000\,(800T + Ky) - 6T}{13528}.$$

Reduce the result to degrees and minutes by dividing by 60.

91. The difference of longitude between sun and moon is found by didi. A didi is the time in which the mean moon increases her longitudinal distance from the mean sun by 12 degrees. The didi elapsed from mean new moon next before Ata Ne to the midnight indicated by the given Thokdadein equal the sum of yet-lun and its fraction plus Thokdadein reduced to didi. That is to say

$$D = Y + \frac{W}{692} + T\left(1 + \frac{11}{692}\right) = Y + T + \frac{11T + W}{692}.$$

92. Having found the sum of didi, divide by 30, and reject the quotient, as it represents complete lunations, and at every new moon the difference of longitude between sun and moon is zero. The remainder multiplied by 12 is degrees of longitude.

93. The remainder of $\frac{11T + W}{692}$ is the awaman of the day. If it be denoted by Wd, then the increase of difference of longitude during the fraction of a didi is, in minutes,

$$Wd + \frac{7Wd}{173}.$$

Reduce it to degrees and minutes by dividing by 60.

94. Add together the sun's longitude and the two parts of the difference between sun and moon. Subtract from the sum 52 minutes. The result is the moon's longitude.

95. Add the week-day figure of Ata Ne to the Thokdadein of Second Wazo Labyi. Divide the sum by 7. The remainder indicates the day of the week of Second Wazo Labyi. The sequence of this day from watat to watat ought to agree with the table in paragraph 77.

96. If the moon's longitude as calculated does not lie within Athanli, a day may be added or subtracted, provided it does not set the week-day wrong. That is to say, if the increase of week-day indicates a wangètat one day may be added; if it indicates a wagyitat one day may be subtracted. Thus, in 1234 the increase of week-day since 1231 as obtained from the Thokdadein was 0, indicating a wangètat. The moon's longitude as calculated was 254° 32′, falling short of Athanli. One day was added to the Thokdadein, making the year a wagyitat, with week-day increase 1. The same occurred in 1245, when the calculated moon's longitude was 261° 10′. In 1261 the calculated longitude was 276° 24′, and increase of week-day 1, indicating a wagyitat. One day was deducted, making a wangètat. The object of this is not apparent, as the moon's longitude often exceeds Athanli. These are the only occasions on which a correction has been applied to the calculated Thokdadein for Second Wazo Labyi since 1215 B. E.

97. Table VI shows the week-day and moon's longitude of Second Wazo Labyi, calculated as above described, for all the watat years from B. E. 1217 to 1361, and the resulting wagyi and wangè tat. For past years the three corrections mentioned in the last paragraph have been made. For future years four corrections are made.

1291	moon's	longitude	263° 20′
1307	,,	,,	265° 29′
1337	,,	,,	265° 35′
1348	,,	,,	261° 50′

98. In each of these four years the moon's calculated longitude falls short of Athanli, and the addition of one day would bring it within Athanli. Without correction each of these years would be wangètat. The Thokdadein is therefore increased

from	96 Saturday	to	97 Sunday
	99 Monday	to	100 Tuesday
	97 Tuesday	to	98 Wednesday
and	95 Sunday	to	96 Monday respectively,

and all four years will be wagyitat.

99. In consequence of these alterations the years 1293, 1310, 1339 and 1350 are *ipso facto* altered from wagyitat to wangètat, the Thokdadein of Second Wazo Labyi in each case remaining unaltered.

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100. The conclusion I arrive at is that in calendars computed under Thandeikta rules watat will continue to be placed in yet-lun-pyo years, but in the year before yet-lun-pyo when yet-lun is 27, 28 or 29; and that yet-ngin will be determined by computation of the moon's longitude by means of Thokdadein, four corrections being made within the next 90 years, namely those in the years 1291, 1307, 1337 and 1348, shown in Table VI.*

* U Kyaw Yan interprets the rule mentioned in para. 81 as meaning that if adimath pyoes while the sun is in Meiktha, Pyeiktha, Medon or Karakat, there is a watat in the current year. This is equivalent to saying that watat occurs in any year in which the epact exceeds yet lun 26 awaman 130. I venture to think that such a rule as this has not been followed hitherto. In 1244 the epact was yet lun 26 awaman 450, but there was no watat.

CHAPTER V.

Defects, and Suggestions for Reform.

101. The Burmese Calendar is essentially a religious one. "The reason given in Maha Wagga why the Wa, or Buddhist Lent, was instituted by Buddha appears to be to prevent the Bhikkus from going on their travels during the rainy season, so that they might not crush the green herbs, hurt the vegetable life, and destroy the lives of many small insects. And the Wa (Vassa), or the retreat, was prescribed to be entered upon in the rainy season for three months." (The Arakanese Calendar, by Htoon Chan; Introduction, page i). Lent begins on the first waning of Wazo or Second Wazo.

102. The direction that the Labyi of Wazo or Second Wazo should fall on a day on which the moon's longitude is at least 266° 40′ is almost exactly equivalent to a direction that the month in which solar new year's day falls should always be the month of Tagu. This is the Hindu rule, *viz.*, the month in which the sun enters Mesha must be called Chaitra.

103. Whether that Hindu rule has any religious significance I know not, but it is evident that however suitable the year of the Surya Siddhanta may be for Hindus, it is not suitable for Buddhists. The rule that the months of Lent, *viz.*, Wazo, Wagaung, Tawthalin and Thadingyut, shall fall in the rainy season cannot be permanently carried out by observing any year except the tropical year.

104. The tropical year (ayana hnit) was known to the author or authors of Thandeikta, but they make no use of it except to calculate the lengths of days and nights. The equinox is said to have coincided with Thingyan Kya about 207 years before Poppasaw's epoch, *i.e.*, about 411 A. D. which is pretty near the truth. The precession is stated to be 54″ per annum, which is not correct. The real rate of precession is about 50″ per annum.

105. The Thandeikta solar year is

365 days 6 hours 12 minutes and 36·56 seconds = 365·2587564814 days.

This is proved by modern science to be incorrect. The mean sidereal year is, according to Guillemin

365 days 6 hours 9 min. and 10·75 secs. = 365·25638 days,

according to Sewell and Dikshit

365 days 6 hours 9 min. and 9·29 secs. = 365·25635 days.

106. The mean tropical year, according to several authorities quoted by Sir Robert Ball for the last century, varied between

365 days 5 hours 48 min. and 46·15 secs.=365·2422789 days and

365 days 5 hours 48 min. and 46·054 sec.=365·2421995 days,

while Sewell and Dikshit give the length of the mean tropical year for 1900 as

365 days 5 hours 48 min. and 45·37 secs.=365·2421917 days.

107. It is manifest then that the Burmese first point of Meiktha is not a fixed point among the stars, although it is intended to represent a fixed point. It is moving forward, away from its original place among the stars. It is diverging at a still faster rate (about 59″ per annum) from the point which the mean sun occupies at the equinox, for the precession of the equinoxes is retrograde. Through the accumulation of this error Thingyan Kya is now about 24 days after the vernal equinox.

108. The luni-solar year necessarily consists sometimes of twelve, sometimes of thirteen, months. The Thandeikta rules are designed to make the average luni-solar year equal to the Thandeikta solar year, that is, about 22 minutes longer than the real tropical year.

109. The Metonic cycle, used by Makaranta, makes the average luni-solar year 365·24675 days. This is greater than the tropical year, but less than the Makaranta solar year. In other words

19 Makaranta solar years	=6939·91625	days
235 lunations	=6939·688415	,,
19 tropical years	=6939·602123	,,

The average Makaranta luni-solar year, therefore, is drifting forward round the seasons, but at a slower rate than the Thandeikta average luni-solar year, which is drifting at the same rate as the Thandeikta solar year.

110. The application of the rules of Thandeikta has lessened the divergence between the Burmese solar and average luni-solar years, but at the expense of accelerating the divergence between the average luni-solar year and the real tropical year. Thandeikta grasped at the shadow (the Burmese solar year not being a real year of any kind) and lost the substance, namely the tropical year which is all-important. It accelerated the pace at which Lent was altering its place in the seasons under the Makaranta system. Lent is already beginning to creep out of the rainy season into the cold season.

111. The Indian and Burmese books ascertain the epact (moon's age at the moment when the solar year ends) in two ways. The yet-lun (with its fraction $\frac{\text{awaman}}{692}$) is the epact expressed in didi. The adimath thetha is the epact expressed, by Makaranta in 228ths of a lunation or 235ths of a solar month, by Thandeikta in 911ths of a lunation or 939ths of a solar month. If both forms

of the epact are correctly calculated they must agree. By Makaranta the adimath thetha is not correct, because the ratio assumed between the lengths of a mean solar month and a mean lunation, 235 : 228, is only a rough approximation; its error is the error of the Metonic cycle. In the first cycle of Poppasaw's era both forms of the epact pyoed in the same year, except in the 8th year when the adimath thetha was slightly in arrear. In the 12th century the error had accumulated so much that adimath pyo was behind yet-lun pyo every time. Thus

Yet-lun pyo	1101	1104	1107	1109	1112	1115	1117
Adimath pyo	1102	1105	1108	1111	1113	1116	1119

In five cases the adimath pyo was one year behind, in the other two cases it was two years behind. Later in the century the error was greater, thus

Yet-lun pyo	1177	1180	1182	1185	1188	1191	1193
Adimath pyo	1178	1181	1184	1187	1189	1192	1195

In three cases the adimath pyo was two years behind. Thandeikta corrected adimath thetha and made it agree with yet lun.

112. To make the month in which Ata Ne occurs Tagu, and the month in which the full moon is in Athanli Wazo or Second Wazo, the watat year should be, not yet-lun pyo year as stated in Thandeikta, but the year before yet-lun pyo, or approximately every year in which yet lun exceeds 19. This was so at the beginning of the era. After 12 centuries we find 6 watat occurring in yet-lun pyo year and the seventh in the year after yet-lun pyo (year 5—expired—of cycles, 61, 62 and 63, *viz.*, 1145, 1164 and 1183). In cycle 64 this last error was corrected at Amarapura by placing the watat in year 4 (1201) instead of year 5 (1202). The subsequent corrections of the Metonic cycle, namely the changes

from 2 to 1 in 1217
,, 13 ,, 12 ,, 1228
,, 10 ,, 9 ,, 1263

have placed watat in the year before yet-lun pyo, but only when the yet-lun amounts to 27, 28 or 29. It seems to have been considered that to revert fully to the original rule, and place watat always in the year before yet-lun pyo, would be too drastic a measure, as it would place the beginning of Lent on the average five days later in the season than it is now. It is already fifteen days later in the season than it was in Poppsasaw's time.

113. From these facts it is clear that

(*a*) The error of the Burmese solar year is constantly moving the nekkat Athanli later and later in the seasons,

(*b*) The present practice of fixing watat by yet-lun pyo or yet-lun 27, 28 or 29, while it puts the Labyi of Second Wazo in Athanli in watat years, leaves the Labyi of Wazo short of Athanli in many common years,

(*c*) If the Athanli rule were fully observed it would immediately move the average Lent five days later than it is at present,

(*d*) If Lent is to be maintained permanently in, or even near, its proper place in the seasons, the solar year of the Surya Siddhanta must be abandoned, and the tropical year substituted for it.

114. Any calendar, if it is to have the maximum of practical utility and convenience, must be easily ascertainable for many years in advance. The best method hitherto devised to attain this end is to make use of cycles. The most notable example of this is the adjustment of days to years in the European calendar, which was first started by Julius Cæsar, and afterwards improved by Pope Gregory XIII. The Julian cycle was 4 years, the Gregorian cycle is 4000 years. Every year which is a multiple of 4 is a leap year, except that every year which is a multiple of 100 but not of 400 is a common year, and 4000 and every multiple of 4000 is a common year. The Gregorian calendar is practically a perfect index of the seasons.

115. The Metonic cycle of 19 years is used by Christian churches to determine Lent and Easter, but the error of the cycle necessitates a complex system of adjustment of the golden numbers every century. Raja Mathan applied the Metonic cycle without any adjustment, and its error has produced in twelve centuries a marked divergence between the solar and average luni-solar years.

116. If reform of the Burmese calendar be undertaken, and the tropical year be adopted, the cycle method of regulating the calendar can be adopted, with practically no error, for there is one perfect luni-solar cycle, namely the cycle of 1040 years, which was discovered by the French astronomer de Cheseaux. 1040 tropical years equal 12863 lunations. This was absolutely correct without any error a few centuries ago. It is not so now because the length of the mean tropical year is decreasing at the rate of about one second in 200 years, while there is no appreciable change in the length of the mean lunation; but the error is so small that it will not amount to one day in 10,000 years.

117. This fact may be easily verified. Three estimates of the length of the mean tropical year, according to modern science, are given in paragraph 106. If these three be multiplied by 1040, the results are respectively

379851·969976 days
379851·88748 ,,
and 379851·879358 ,,

The length of a mean lunation is, according to

Ball	29·530589	days
Young	29·530588	,,
Surya Siddhanta	29·530587946	,,

If these three be multiplied by 12863, the results are respectively

	379851·966307	days
	379851·953444	,,
and	379851·952749398	,,

Comparing the greatest estimate of 12863 mean lunations and the smallest estimate of 1040 mean tropical years,

12863 mean lunations	=	379851·966307	days
1040 mean tropical years	=	379851·879368	,,
the difference is only		·086939	,,

In 10,000 years the difference would amount to about 20 hours. This is a maximum estimate.

118. The best way to apply the cycle of 1040 years is to use it to make corrections in the Metonic cycle at regular intervals. The problem is to find at what intervals the correction should be made.

119. The number of watat in 1040 years is found by subtracting the solar from the lunar months.

$$12863 - 12480 = 383.$$

Now multiply the two kinds of cycles together.

$$19 \times 1040 = 19760.$$

The number of watat in 19760 years is

By Meto	7 × 1040	= 7280
By de Cheseaux	383 × 19	= 7277
	Difference	3

The Metonic cycle must be so modified as to cut out 3 watat in 19760 years.

120. The intervals between watat run in a series thus 3 3 3 2 3 3 2 and so on, over again. In each Metonic cycle there are two two-year intervals, one of which follows three three-year intervals, and the other follows two three-year intervals. Every correction must be made by converting into a three-year interval one of those two-year intervals which follow two three-year intervals Thus

I . . I . . I . . I . I . . I . . I . .
I . I . . I . . I . . I . I . . I . .

I . I . . I . . I . I . . I . . I . .
I . I . . I . . I . . I . I . . I . .

I . I . . I . . I . I . . I . . I . . | I
I . . I . I . . I . . I . I . . I . . | I

The figure 1 represents a watat year; a dot represents a common year. The upper line represents the original position of watat in three Metonic cycles; the lower line represents the result of two shifts. In the first cycle the fifth watat is postponed one year. This correction is repeated in the second and third cycles, and in the third cycle a second correction is made by postponing the second watat one year. It is obvious that when seven shifts have been made in this way every watat in a Metonic cycle will be one year later than it would have been if no shifts had been made.

121. The average interval between one watat and the next is, by Meto, $\frac{19}{7}$ years. Therefore to reduce the number of watat in any given period by one, the number of forward shifts required is $\frac{19}{7} \times 7 = 19$. The number of shifts required to cut out three watat in 19760 years is $19 \times 3 = 57$. The interval between one shift and the next is $19760 \div 57 = 346{\cdot}6'$ years. It is unnecessary to pursue this branch of the inquiry any further. The result at which we have arrived is that if the tropical year be adopted as the solar year in Burma, the positions of the watat in the current cycle, namely

1 4 7 9 12 15 18

should be maintained without any alteration for 18 cycles more, that is, until the year 1623 B. E. (A. D. 2261).

122. It remains to find a rule for insertion of intercalary days. 1040 years contain 12863 months, of which 12480 are ordinary and 383 intercalated. All the intercalated months have 30 days each. Half the ordinary months have only 29 days each. Therefore without intercalary days the 12863 months would have $12863 \times 30 - 6240$ days $= 379650$ days. Subtract this number from the highest and lowest figures for the number of days in de Cheseaux's cycle, given in paragraph 117.

379851·966	379851·879
379650	379650
201·966	201·879

Taking an average, 201·922 intercalary days are required in 1040 years, or 403·845 in 2080 years. If watat were alternately wagyitat and wangètat throughout the whole period of 2080 years there would be 383 wagyitat, leaving a deficit of 20·845 days. This is almost exactly one day in 100 years. Therefore the required number would be made up by intercalary days in two successive watat once in fifty years, all other watat being alternately wagyitat and wangètat. The number of watat in any consecutive fifty years is sometimes 19 and sometimes 18. The rule therefore might be that all watat shall be alternately wagyitat and wangètat, except that (*a*) the first watat in every fifty years shall be a wagyitat, and (*b*) if the last watat in any fifty years be a wangètat, then both the first and second watat in the following fifty years shall be wagyitat.

123. If the tropical year be adopted as the solar year of Burma, and the watat continue to be placed as in the current Metonic cycle, there are some preliminary adjustments to be considered. In the first place, in order that the month in which the solar year begins may always be Tagu, and that the Labyi which marks the beginning of Lent may always occur when the moon is in Athanli, it is necessary that Thingyan Tet should be put about $7\frac{1}{2}$ days earlier in the season than it is at present. The sun's position at Thingyan Tet marks the zero of longitude; if that zero be moved westwards Athanli will move westwards to an equal extent, and will thus adjust itself to the moon's position at Wazo Labyi as it is in the current cycle.

124. There is no apparent reason why Thingyan Tet should not always be put at midnight. Under the Burmese system the civil month always begins at midnight though the lunation does not. It would be only consonant with this practice to make the civil solar year begin at midnight. It has been shown that the European calendar is a practically perfect index of the seasons. It would be obviously convenient if the Burmese solar year always began at midnight of the same day of the European calendar, say midnight of 7th—8th April. Early in the 12th century B. E. it varied between the 11th and 12th April. It is now 15th April.

125. If any reform of the calendar be undertaken it would be worth while to correct the error of the calendar month. Table VIII shows how this error has grown in twelve centuries. In the 29 years from 1235 to 1263 B. E. the Lagwè was the day on which mean new moon occurred only eight times, namely in

March	1873
May	1873
August	1874
October	1874
August	1883
October	1883
November	1883
January	1884

In 171 months Lagwè was one day too early. In 172 months it was two days too early. In 9 months it was three days too early, namely in

February	1880
April	1880
October	1890
December	1890
February	1891
April	1891
February	1896
April	1896
April	1901

The error has increased considerably of late years, and ought to be corrected to some extent. This can be done most conveniently by placing three yet-ngin instead of two in the five watat between 1270 and 1283 B. E., thus

Watat	Thandeikta	Proposed
1272	gyi	gyi
1274	nge	ngè
1277	ngè	gyi
1280	gyi	ngè
1282	ngè	gyi

126. If the tropical year be adopted, and the two initial corrections suggested in the last three paragraphs be made, *viz.* the solar year to commence at midnight of 7th—8th April every year and one extra yet-ngin to be inserted between 1270 and 1283, then the reformed calendar might conveniently commence from the first day of the tropical solar year 1281, 8th April 1919. The rules for compiling this calendar for a number of years are very simple.

PROPOSED RULES FOR A REFORMED BURMESE CALENDAR.

127. (1) Divide Thagayit by 19. If the remainder be

1 4 7 9 12 15 or 18

the year has an intercalary month. This rule holds good until the year 1623 B. E.

(2). After B. E. 1623 the watat years in the Metonic cycle change as follows:—

9 changes to 10 in B. E. 1625
1 ,, ,, 2 ,, ,, 1978
12 ,, ,, 13 ,, ,, 2331
4 ,, ,, 5 ,, ,, 2684
15 ,, ,, 16 ,, ,, 3037
7 ,, ,, 8 ,, ,, 3390

(3). Mark all the watat for a number of years as above. Then divide them into periods of fifty years, commencing from 1281, thus,

1281 — 1330
1331 — 1380
1381 — 1430

and so on. Watat years are alternately wagyitat and wangètat, except that

(*a*) in each period of 50 years the first watat is wagyitat, and

(*b*) when the last watat of any 50 years is wangètat, then both the first and second watat of the next following 50 years are wagyitat.

(4). To find the week-day of 1st waxing of Tagu, or the week-day of any day in Tagu, Kason or Nayon, from the week-day of the same day of the last preceding luni-solar year. If the preceding year was a common year, add 4. If the preceding year was a wangètat, add 6. If the preceding year was a wagyitat, add 0.

For Wazo, if the preceding year was a common year, add 4. If the preceding year was a watat of either kind, add 6.

For any other month, if the present year is a common year, add 4. If the present year is a wangètat, add 6. If the present year is a wagyitat, add 0.

Whenever the sum exceeds 6, subtract 7.

(5). To find the week-day of Thingyan Tet. Divide Thagayit by 4. If the remainder is 2, add 2, if not add 1, to the week-day of Thingyan Tet of the last preceding year. If the sum exceeds 6, subtract 7. This rule holds good until B. E. 1461.

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128. The results obtained from Thandeikta may be compared with those obtained from the system of averages based on de Cheseaux's cycle, for 82 years beginning in B. E. 1281, by examining tables II and III. In 58 years out of the 82 the luni-solar year by both systems begins on the same day. In the other 24 years the luni-solar year in table III begins one day later than in table II. If the tables had been prolonged a few years later the divergence of the two systems would have become conspicuous. We have seen that Thandeikta puts a watat in the year before yet-lun pyo when yet-lun amounts to 27, 28 or 29 (paragraph 100), and in order to effect this four of the seven watat years of the Metonic cycle have been altered (paragraph 112). The next alteration to be made by Thandeikta will be the transfer of watat from year 18 to year 17 of the cycle. This is to take place when yet-lun of year 17 exceeds 26. The yet-lun and its fraction (awaman) of year 17 are as follows :—

B. E.	Yet-lun.	Awaman.
1233	24	569
1252	25	96
1271	25	316
1290	25	535
1309	26	62
1328	26	281
1347	26	501
1366	27	30

So that in B. E. 1366 Thandeikta would create the first serious divergence from the system of averages, and would thrust lent further than ever out of its original place in the tropical year, by transferring the watat from year 18 to year 17 of the Metonic cycle.

129. Tables II and III exhibit a marked difference in respect of the solar year. In table II Thingyan Tet is frequently in Kason. In table III it occurs on 1st waxing of Kason once in each Metonic cycle and no more. In all other years it is in Tagu. If Tagu happened to be a month of 30 days it would always be in Tagu.

130. The official calendar-makers to the late Burmese Government were a race of Hindu astrologers, the descendants of Brahmans said to have come to Mandalay from Manipur, and known in Burma as Ponnas. Since the annexation of Upper Burma the British Local Government has assumed the function of officially promulgating the essential elements of the calendar every year by notification in the *Burma Gazette*. The details are obtained from the Ponnas at Mandalay, as they were by the Native Government, and are submitted for approval to the Head of the Buddhist religious orders before the Government takes action.

131. A glance at the specimen page given in paragraph 49 is sufficient to show that the learned Ponnas expend enormous labour in computing all the details set out in the calendar. But those details consist chiefly of an ephemeris of the longitudes of the sun, moon and planets, which, though they are interesting, and may be essential to the pursuit of the science of astrology, are quite irrelevant to the all-important matter of fixing the number of months and number of days in each year. This is the only matter with which the public in general is concerned. But since the introduction of Thandeikta methods this distinction has been lost sight of, and the determination of watat and yet-ngin has been retarded by waiting on the computation of the ephemeris. Until recently the calendar for each year was notified only in the autumn of the previous year, too late for use in preparing the numerous diaries that are published in Burma, India and England. The compilers of such of these diaries as are intended for use in Burma had to guess the intercalary months and days, or act on the advice of irresponsible astrologers in Rangoon or elsewhere, and the guesses and advice were sometimes wrong. The last few years an improvement has been effected by notifying the calendar nearly two years in advance. But there is no reason why it should not be notified forthwith for hundreds of years, or for ever by means of the rules in para. 127.

132. One reason which makes it desirable to notify the calendar forthwith for a long series of years is that the present practice tends to encourage some amateur astrologers who dispute the correctness of the Ponnas' calendars, and publish pamphlets in which they endeavour to enforce their own views about the insertion of intercalary months and days in certain years. Whether they succeed in gaining many adherents may be debatable, but it obviously tends to create confusion in legal documents and otherwise if such persons get a hearing at all. The important point is that the matter should be settled once for all, by

authority, by the promulgation of such simple rules that any educated man may be able to construct a calendar of any year for himself. The author claims that the rules proposed in paragraph 127 fulfil this condition.

133. No doubt it would be possible without the promulgation of any rules to fix the watat and yet-ngin in advance for a long series of years by notification. If it be conceded that Government should do this, it may be asked what is there to choose between adopting Table II which is the result of Thandeikta methods and adopting Table III which is compiled in accordance with the rules proposed for a reformed calendar in paragraph 127. The answer is that so far as results in the near future are concerned there is very little to choose. In 24 years out of 82 the Lagwè is nearer to the real new moon in table III than in table II, and table III makes 18 out of every 19 solar years begin in Tagu, whereas table II makes 22 of the 82 years begin in Kason. But table III has this advantage, that it is based on simple rules by which the whole of it could be reconstructed at any time in an hour or two, given the details for any one year; and the same rules would carry it on for ever; whereas if table II be adopted the rules of Thandeikta will in 1266 B. E. create a serious departure from correct principles by placing lent later than ever in the season, and further errors will be introduced at intervals of 130 years or less. Long and tedious calculations are required to determine the watat and yet-ngin by Thandeikta; these are all abolished by the proposed rules for a reformed calendar.

134. The Arakanese calendar, it is believed, has never been officially notified by Government since the annexation of that part of the Province. There was apparently no need to do so, because the calendar had been fixed for 2000 years at once, and no controversy about the correctness of it seems to have arisen. Lent is falling later in the season than it used to be, but the Arakanese calendar would go on for about 1400 years more before the average lent would get so late as the average lent by Thandeikta is now. Therefore there seems to be no reason why the Arakanese calendar should be interfered with. Its chief defect is the error of the solar year. That could be corrected, if so desired, without any interference with the luni-solar year.

CHAPTER VI.

NOTES ON THE TABLES.

135. Table I exhibits all the essential elements of the calendar as actually observed in Burma Proper for the last 170 years. The years 1909 and 1910 are added because the calendars of those years have been officially promulgated.

136. The day of the week on which the luni-solar year begins is shown in column 5, and its date by the English calendar in columns 6 and 7. The time of mean new moon obtained from European sources (Guinness's tables) is shown in columns 2 to 4 for comparison with the Lagwè of Tabaung, the last day of the expired luni-solar year.

137. The day, hour, minute, and second at which the solar year begins (Thingyan Tet, or Mean Mesha Sankranti) are shown in columns 8 to 14, English date, week day and Burmese date. The time of Thingyan Kya, or apparent Mesha Sankranti, can be found from this by subtracting 2 days, 4 hours, 1 minute, 12 seconds.

138. Columns 18 and 19 give the watat years; 18 shows whether there is an intercalary day or not; 19 shows the day of July on which the full moon of the intercalary month falls. An examination of column 19 is the easiest way of ascertaining whether Lent is maintaining its place among the seasons or moving forward or backward.

139. Table I agrees with Moyle's Calendars, so far as they go, except in the period from 9th June, 1877, to 5th June, 1880. Mr. Moyle makes B. E. 1239 (A. D. 1877) a wa-gyi-tat, and B. E. 1242 (A. D. 1880) a wa-ngè-tat. All the other authorities I have been able to consult agree in making 1239 a wa-ngè-tat and 1242 a wa-gyi-tat. This is confirmed by notes of certain new and full moons in my own diary for 1878. For this period, therefore, I think Mr. Moyle has an error of one day.

140. Table II is in the same form, and gives the elements of the Burmese calendar compiled by Thandeikta methods for the next 92 years. The wa-tat are regulated by the yet-lun as described in paragraph 85. It is not absolutely certain that this rule will be followed in future. There is also some uncertainty about the yet-ngin in the years 1291, 1307, 1337 and 1348, as indicated in paragraphs 97 to 99. Each of these years and the next following watat year must be, one a wagyitat and the other a wangètat. The uncertainty is whether the wagyitat will precede or follow the wangètat. In the uncertain years the yet-

ngin are placed as shown in table VI. In columns 10 and 11 the year 1292 is shown as 108 seconds longer than any other year in the table by reason of the correction described in paragraph 55.

141. Table III is an alternative to table II. It embodies the suggestions made in paragraphs 116 to 127 for removing all doubts, simplifying the regulation of future calendars, and keeping lent in its proper season by using de Cheseaux's cycle of 1040 years. The cycle would commence in 1281, (A. D. 1919), and in the ten years preceding that year one intercalary day more than Thandeikta would allow is inserted in order to bring the calendar months into nearer conformity with mean and apparent lunations (paragraph 125). The times of mean new moon are omitted as they would be a mere repetition of the times shown in table II. The hour, minute and second of Thingyan Tet are omitted because it is proposed that Thingyan Tet should in future be fixed at midnight (paragraph 124). In this table the watat years happen to be the same as in table II (para. 128); the yet-ngin are placed according to the rule set out in paragraph 127.

142. Table IV exhibits the elements of the Arakanese calendar for 262 years, in the same form as table III except that a special column is retained for the English date of Thingyan Tet because that date continues to change slowly in consequence of the error in the length of the Makaranta solar year (paragraph 36), whereas in table III Thingyan Tet is fixed for all time at 8th April and it therefore requires no separate column for the English date.

143. Table V is copied by permission of Mr. Htoon Chan from his book. It shows the week-day on which the Labyi of Wazo falls in Arakan each year for 2000 years. It also shows the watat, in this way. When two consecutive years have the same week-day figure, the later of the two is a wagyitat. When the later of two consecutive years has a week-day figure either 1 less or 6 more than that of the preceding year, the later year is a wa-ngè-tat.

144. Table VI exhibits the results of the calculations by which the intercalary days were placed in table II, column 18. See paragraphs 88 to 100.

145. Table VII compares the moon's age at midnight of solar New Year's Day, as found from European sources, with the same as found by Makaranta methods. Column 2 shows approximately, in days and hours, the European computation for mean new moon, Mandalay civil time. Column 3 shows solar New Year's Day. Column 4 shows the moon's age as calculated from columns 2 and 3, expressed in days and hours. Column 5 shows the moon's age as calculated by Makaranta, expressed in didi and fraction. The differences are very small. The Burmese computations put the mean new moon slightly later than the European ones.

146. Table VIII shows the divergence between the mean new moon and the lagwè every month for 29 years. The effect of the intercalary months and days can be traced by reference to the entries in the last column. The "Mandalay time" in column 6 is 6 hours, 21 minutes in advance of Greenwich time. This is in point of fact a nearer approximation to Pagan time than to Mandalay time, but Mandalay is a more distinctive name now, and an error of 4 or 5 minutes one way or the other is of no importance. The object of this table will be seen in paragraph 125.

147. Table IX shows the English month and day for the first day of each Burmese month, corresponding to each day on which the 1st waxing of Tagu can fall. It is in three parts, for common, wangètat and wagyitat years. In the last column of parts II and III all dates later than 28th February are left blank because of the ambiguity caused by English leap-years.

Example.—To find the English date corresponding to B. E. 1255, Natdaw waning 2nd. In table I, column 15, find 1255. On the same line columns 1, 6 and 7 show that Tagu waxing 1st was A. D. 1893 March 17th, and column 18 shows that the year 1255 was a wangètat. In table IX, part II (wangètat years), column 1 (Tagu), find March 17th. On the same line in column Natdaw is December 8th. This was 1st waxing Natdaw 1255. Therefore 2nd waning of the same month was 24th December.

If the given Burmese date be in Hnaung Tagu or Hnaung Kason, add 1 to the year. Thus, 1244 Hnaung Tagu waxing 5. Look in table I opposite 1245. The date is 12th March 1883.

148. Table X is used in the same way to find the week-day of any given Burmese date. Thus table I shows in column 5 that in 1255 Tagu waxing 1st was Friday. In table X, part II, on the line Tagu find Fri. In the same column on the line Natdaw is Fri. Natdaw waxing 1st was Friday; therefore Natdaw waning 2nd was Sunday.

149. In column 14 of tables I & II, and the corresponding columns of tables III & IV, the days of the Burmese month are reckoned in one series for the sake of brevity. Thus 22 means the 7th day of the waning half of the month.

TABLES.

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
	M.	D.	H.	Week Day.	M.	D.
1	2	3	4	5	6	7
1739	March . .	10	4	Mon.	March . .	9
1740	,, . .	28	2	Mon.	,, . .	28
1741	,, . .	17	11	Fri.	,, . .	17
1742	,, . .	6	19	Tu.	,, . .	6
1743	,, . .	25	17	Mon.	,, . .	25
1744	,, . .	14	2	Fri.	,, . .	13
1745	,, . .	3	11	Tu.	,, . .	2
1746	,, . .	22	8	Tu.	,, . .	22
1747	,, . .	11	17	Sat.	,, . .	11
1748	,, . .	29	15	Fri.	,, . .	29
1749	,, . .	18	23	Tu.	,, . .	18
1750	,, . .	8	8	Sat.	,, . .	7
1751	,, . .	27	6	Sat.	,, . .	27
1752	,, . .	15	15	Wed.	,, . .	15
1753	,, . .	4	23	Sun.	,, . .	4
1754	,, . .	23	21	Sun.	,, . .	24
1755	,, . .	13	6	Th.	,, . .	13
1756	,, . .	31	3	Wed.	,, . .	31
1757	,, . .	20	12	Sun.	,, . .	20
1758	,, . .	9	21	Th.	,, . .	9
1759	,, . .	28	18	Th.	,, . .	29
1760	,, . .	17	3	Mon.	,, . .	17
1761	,, . .	6	12	Fri.	,, . .	6
1762	,, . .	25	10	Th.	,, . .	25
1763	,, . .	14	18	Mon.	,, . .	14
1764	,, . .	3	3	Fri.	,, . .	2
1765	,, . .	22	1	Th.	,, . .	21
1766	,, . .	11	10	Mon.	,, . .	10
1767	,, . .	30	7	Mon.	,, . .	30
1768	,, . .	18	16	Fri.	,, . .	18
1769	,, . .	8	1	Tu.	,, . .	7
1770	,, . .	26	22	Tu.	,, . .	27
1771	,, . .	16	7	Sat.	,, . .	16
1772	,, . .	4	16	Wed.	,, . .	4
1,73	,, . .	23	13	Tu.	,, . .	23
1774	,, . .	12	22	Sat.	,, . .	12
1775	,, . .	31	20	Fri.	,, . .	31
1776	,, . .	20	5	Tu.	,, . .	19
1777	,, . .	9	13	Sat.	,, . .	8
1778	,, . .	28	11	Sat.	,, . .	28

TABLE I.

FROM A. D. 1739 TO 1910, B. E. 1101 TO 1272.

Solar New Year (Thingyan Tet.)							B.-E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April.											July
12	10	28	12	Sun.	Kason . .	6	1101	57	18	30	20
11	16	40	48	Mon.	Tagu . .	15	1102	58	0		
11	22	53	24	Tu.	,, . .	26	1103		1		
12	5	6	0	Th.	Kason . .	9	1104		2	29	16
12	11	18	36	Fri.	Tagu . .	19	1105		3		
11	17	31	12	Sat.	Kason . .	1	1106		4		
11	23	43	48	Sun.	,, . .	12	1107		5	30	13
12	5	56	24	Tu.	Tagu . .	22	1108		6		
12	12	9	0	Wed.	Kason . .	4	1109		7	29	21
11	18	21	36	Th.	Tagu . .	14	1110		8		
12	0	34	12	Sat.	,, . .	26	1111		9		
12	6	46	48	Sun.	Kason . .	8	1112		10	30	18
12	12	59	24	Mon.	Tagu . .	17	1113		11		
11	19	12	0	Tu.	,, . .	28	1114		12		
12	1	24	36	Th.	Kason . .	11	1115		13	30	15
12	7	37	12	Fri.	Tagu . .	20	1116		14		
12	13	49	48	Sat.	Kason . .	2	1117		15	29	23
11	20	2	24	Sun.	Tagu . .	12	1118		16		
12	2	15	0	Tu.	,, . .	24	1119		17		
12	8	27	36	Wed.	Kason . .	6	1120		18	30	20
12	14	40	12	Th.	Tagu . .	15	1121	59	0		
11	20	52	48	Fri.	,, . .	26	1122		1		
12	3	5	24	Sun.	Kason . .	9	1123		2	29	16
12	9	18	0	Mon.	Tagu . .	19	1124		3		
12	15	30	36	Tu.	Kason . .	1	1125		4		
11	21	43	12	Wed.	,, . .	12	1126		5	29	12
12	3	55	48	Fri.	Tagu . .	23	1127		6		
12	10	8	24	Sat.	Kason . .	5	1128		7	30	21
12	16	21	0	Sun.	Tagu . .	14	1129		8		
11	22	33	36	Mon.	,, . .	25	1130		9		
12	4	46	12	Wed.	Kason . .	8	1131		10	30	18
12	1	58	48	Th.	Tagu . .	17	1132		11		
12	17	11	24	Fri.	,, . .	28	1133		12		
11	23	24	0	Sat.	Kason . .	10	1134		13	29	14
12	5	36	36	Mon.	Tagu . .	21	1135		14		
12	11	49	12	Tu.	Kason . .	3	1136		15	29	22
12	18	1	48	Wed.	Tagu . .	13	1137		16		
12	0	14	24	Fri.	,, . .	25	1138		17		
12	6	27	0	Sat.	Kason . .	7	1139		18	30	19
12	12	39	36	Sun.	Tagu . .	16	1140	60	0		

TABLE I

ELEMENTS OF THE BURMESE CALENDAR FOR 172 YEARS

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
		M.	D. H.	Week Day.	M.	D.
1	2		3 4	5	6	7
1779	March		17 20	Wed.	March	17
1780	,,		6 1	Sun.	,,	5
1781	,,		25 2	Sun.	,,	25
1782	,,		14 11	Th.	,,	14
1783	,,		3 20	Mon.	,,	3
1784	,,		21 17	Sun.	,,	21
1785	,,		11 2	Th.	,,	10
1786	,,		30 0	Th.	,,	30
1787	,,		19 8	Mon.	,,	19
1788	,,		7 17	Fri.	,,	7
1789	,,		26 15	Fri.	,,	27
1790	,,		15 23	Tu.	,,	16
1791	,,		5 8	Sat.	,,	5
1792	,,		23 6	Fri.	,,	23
1793	,,		12 15	Tu.	,,	12
1794	,,		31 12	Mon.	,,	31
1795	,,		20 21	Fri.	,,	20
1796	,,		9 6	Tu.	,,	8
1797	,,		28 1	Tu.	,,	28
1798	,,		17 12	Sat.	,,	17
1799	,,		6 21	Wed.	,,	6
1800	,,		25 19	Tu.	,,	25
1801	,,		15 3	Sat.	,,	14
1802	,,		4 12	Wed.	,,	3
1803	,,		23 10	Wed.	,,	23
1804	,,		11 19	Sun.	,,	11
1805	,,		30 16	Sat.	,,	30
1806	,,		20 1	Wed.	,,	19
1807	,,		9 10	Sun.	,,	8
1808	,,		27 7	Sun.	,,	27
1809	,,		16 16	Th.	,,	16
1810	,,		6 1	Mon.	,,	5
1811	,,		24 22	Sun.	,,	24
1812	,,		13 7	Th.	,,	12
1813	April		1 5	Th.	April	1
1814	March		21 14	Mon.	March	21
1815	,,		10 22	Fri.	,,	10
1816	,,		28 20	Th.	,,	28
1817	,,		18 5	Mon.	,,	17
1818	,,		7 14	Fri.	,,	6

—continued.

FROM A. D. 1739 TO 1910, B. E. 1101 TO 1272.

Solar New Year (Thingyan Tet).							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April.											July.
12	18	52	12	Mon.	Tagu . .	27	1141		1		
12	1	4	48	Wed.	Kason . .	10	1142		2	30	16
12	7	17	24	Th.	Tagu . .	19	1143		3		
12	13	30	0	Fri.	Kason . .	1	1144		4		
12	19	42	36	Sat.	,, . .	12	1145		5	29	13
12	1	55	12	Mon.	Tagu . .	23	1146		6		
12	8	7	48	Tu.	Kason . .	5	1147		7	30	21
12	14	20	24	Wed.	Tagu . .	14	1148		8		
12	20	33	0	Th.	,, . .	25	1149		9		
12	2	45	36	Sat.	Kason . .	8	1150		10	30	18
12	8	58	12	Sun.	Tagu . .	17	1151		11		
12	15	10	48	Mon.	,, . .	28	1152		12		
12	21	23	24	Tu.	Kason . .	10	1153		13	29	15
12	3	36	0	Th.	Tagu . .	21	1154		14		
12	9	48	36	Fri.	Kason . .	3	1155		15	29	22
12	16	1	12	Sat.	Tagu . .	13	1156		16		
12	22	13	48	Sun.	,, . .	24	1157		17		
12	4	26	24	Tu.	Kason . .	7	1158		18	30	19
12	10	39	0	Wed.	Tagu . .	16	1159	61	0		
12	16	51	36	Th.	,, . .	27	1160		1		
12	23	4	12	Fri.	Kason . .	9	1161		2	29	16
13	5	16	48	Sun.	Tagu . .	20	1162		3		
13	11	29	24	Mon.	Kason . .	2	1163		4		
13	17	42	0	Tu.	,, . .	13	1164		5	30	14
13	23	54	36	Wed.	Tagu . .	22	1165		6		
13	6	7	12	Fri.	Kason . .	5	1166		7	29	21
13	12	19	48	Sat.	Tagu . .	15	1167		8		
13	18	32	24	Sun.	,, . .	26	1168		9		
14	0	45	0	Tu.	Kason . .	9	1169		10	30	19
13	6	57	36	Wed.	Tagu . .	18	1170		11		
13	13	10	12	Th.	,, . .	29	1171		12		
13	19	22	48	Fri.	Kason . .	11	1172		13	29	15
14	1	35	24	Sun.	Tagu . .	22	1173		14		
13	7	48	0	Mon.	Kason . .	4	1174		15	30	23
13	15	0	36	Tu.	Tagu . .	13	1175		16		
13	20	13	12	Wed.	,, . .	24	1176		17		
14	2	25	48	Fri.	Kason . .	7	1177		18	29	20
13	8	38	24	Sat.	Tagu . .	17	1178	62	0		
13	14	51	0	Sun.	,, . .	28	1179		1		
13	21	3	36	Mon.	Kason . .	10	1180		2	30	17

TABLE I

ELEMENTS OF THE BURMESE CALENDAR FOR 172 YEARS

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
				Week Day.		
	M.	D.	H.		M.	D.
1	2	3	3	4	5	7
1819	March . .	26	11	Fri.	March . .	26
1820	,, . .	14	20	Tu.	,, . .	14
1821	,, . .	4	5	Sat.	,, . .	3
1822	,, . .	23	2	Sat.	,, . .	23
1823	,, . .	12	11	Wed.	,, . .	12
1824	,, . .	30	9	Tu.	,, . .	30
1825	,, . .	19	17	Sat.	,, . .	19
1826	,, . .	9	2	Wed.	,, . .	8
1827	,, . .	28	0	Wed.	,, . .	28
1828	,, . .	16	9	Sun.	,, . .	16
1829	,, . .	5	17	Th.	,, . .	5
1830	,, . .	24	15	Wed.	,, . .	24
1831	,, . .	14	0	Sun.	,, . .	13
1832	,, . .	31	21	Sun.	April . .	1
1833	,, . .	21	6	Th.	March . .	21
1834	,, . .	10	15	Mon.	,, . .	10
1835	,, . .	29	13	Sun.	,, . .	29
1836	,, . .	17	21	Th.	,, . .	17
1837	,, . .	7	6	Mon.	,, . .	6
1838	,, . .	26	4	Mon.	,, . .	26
1839	,, . .	15	12	Fri.	,, . .	15
1840	April . .	2	10	Th.	April . .	2
1841	March . .	22	19	Mon.	March . .	22
1842	,, . .	12	4	Fri.	,, . .	11
1843	,, . .	31	1	Fri.	,, . .	31
1844	,, . .	19	10	Tu.	,, . .	19
1845	,, . .	8	19	Sat.	,, . .	8
1846	,, . .	27	16	Sat.	,, . .	28
1847	,, . .	17	1	Wed.	,, . .	17
1848	,, . .	5	10	Sun.	,, . .	5
1849	,, . .	24	8	Sat.	,, . .	24
1850	,, . .	13	16	Wed.	,, . .	13
1851	April . .	1	14	Tu.	April . .	1
1852	March . .	20	23	Sat.	March . .	20
1853	,, . .	10	8	Wed.	,, . .	9
1854	,, . .	29	5	Wed.	,, . .	29
1855	,, . .	18	14	Sun.	,, . .	18
1856	April . .	5	11	Sat.	April . .	5
1857	March . .	25	20	Wed.	March . .	25
1858	,, . .	15	5	Sun.	,, . .	14

—continued.

FROM A. D. 1739 TO 1910, B. E. 1101 TO 1272.

Solar New Year (Thingyan Tet).							B.E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April.											July
14	3	16	12	Wed.	Tagu	20	1181		3		
13	9	28	48	Th.	Kason	2	1182		4		
13	15	41	24	Fri.	,,	13	1183		5	30	14
13	21	54	0	Sat.	Tagu	22	1184		6		
14	4	6	36	Mon.	Kason	5	1185		7	29	22
13	10	19	12	Tu.	Tagu	15	1186		8		
13	16	31	48	Wed.	,,	26	1187		9		
13	22	44	24	Th.	Kason	8	1188		10	30	19
14	4	57	0	Sat.	Tagu	18	1189		11		
13	11	9	36	Sun.	,,	29	1190		12		
13	17	22	12	Mon.	Kason	11	1191		13	29	15
13	23	34	48	Tu.	Tagu	21	1192		14		
14	5	47	24	Th.	Kason	4	1193		15	30	24
13	12	0	0	Fri.	Tagu	13	1194		16		
13	18	12	36	Sat.	,,	24	1195		17		
14	0	25	12	Mon.	Kason	7	1196		18	29	20
14	6	37	48	Tu.	Tagu	17	1197	63	0		
13	12	50	24	Wed.	,,	28	1198		1		
13	19	3	0	Th.	Kason	10	1199		2	30	17
14	1	15	36	Sat.	Tagu	20	1200		3		
14	7	28	12	Sun.	Kason	2	1201		4	29	25
13	13	40	48	Mon.	Tagu	12	1202		5		
13	19	53	24	Tu.	,,	23	1203		6		
14	2	6	0	Th.	Kason	6	1204		7	30	22
14	8	18	36	Fri.	Tagu	15	1205		8		
13	14	31	12	Sat.	,,	26	1206		9		
13	20	43	48	Sun.	Kason	8	1207		10	30	19
14	2	56	24	Tu.	Tagu	18	1208		11		
14	9	9	0	Wed.	,,	29	1209		12		
13	15	21	36	Th.	Kason	11	1210		13	29	15
13	21	34	12	Fri.	Tagu	21	1211		14		
14	3	46	48	Sun.	Kason	4	1212		15	29	23
14	9	59	24	Mon.	Tagu	14	1213		16		
13	16	12	0	Tu.	,,	25	1214		17		
13	22	24	36	Wed.	Kason	7	1215		18	30	20
14	4	37	12	Fri.	Tagu	17	1216	64	0		
14	10	49	48	Sat.	,,	28	1217		1	29	28
13	17	2	24	Sun.	,,	9	1218		2		
13	23	15	0	Mon.	,,	20	1219		3		
14	5	27	36	Wed.	Kason	3	1220		4	30	25

TABLE I

ELEMENTS OF THE BURMESE CALENDAR FOR 172 YEARS

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
	M.	D.	H.	Week Day.	M.	D.
1	2	3	4	5	6	7
1859	April	3	3	Sun.	April	3
1860	March	22	11	Th.	March	22
1861	,,	11	20	Mon.	,,	11
1862	,,	30	18	Sun.	,,	30
1863	,,	20	3	Th.	,,	19
1864	,,	8	11	Mon.	,,	7
1865	,,	27	10	Mon.	,,	27
1866	,,	16	18	Fri.	,,	16
1867	April	4	15	Th.	April	4
1868	March	24	0	Mon.	March	23
1869	,,	13	9	Fri.	,,	12
1870	April	1	6	Fri.	April	1
1871	March	21	15	Tu.	March	21
1872	,,	10	0	Sat.	,,	9
1873	,,	28	22	Sat.	,,	29
1874	,,	18	6	Wed.	,,	18
1875	April	6	4	Tu.	April	6
1876	March	25	13	Sat.	March	25
1877	,,	14	22	Wed.	,,	14
1878	April	2	19	Tu.	April	2
1879	March	23	4	Sat.	March	22
1880	,,	11	13	Wed.	,,	10
1881	,,	30	10	Wed.	,,	30
1882	,,	19	19	Sun.	,,	19
1883	,,	9	4	Th.	,,	8
1884	,,	27	1	Th.	,,	27
1885	,,	16	10	Mon.	,,	16
1886	April	4	8	Sun.	April	4
1887	March	24	17	Th.	March	24
1888	,,	13	1	Mon.	,,	12
1889	,,	31	23	Sun.	,,	31
1890	,,	21	8	Th.	,,	20
1891	,,	10	17	Mon.	,,	9
1892	,,	28	14	Mon.	,,	28
1893	,,	17	23	Fri.	,,	17
1894	April	5	20	Th.	April	5
1895	March	26	5	Mon.	March	25
1896	,,	14	14	Fri.	,,	13
1897	April	2	12	Fri.	April	2
1898	March	22	20	Tu.	March	22

—continued.

FROM A. D. 1739 TO 1910, B. E. 1101 TO 1272.

Solar New Year (Thingyan Tet).							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April.											July.
14	11	40	12	Th.	Tagu . .	12	1221	64	5		
13	17	52	48	Fri.	,, . .	23	1222		6		
14	0	5	24	Sun.	Kason . .	6	1223		7	29	21
14	6	18	0	Mon.	Tagu . .	16	1224		8		
14	12	30	36	Tu.	,, . .	27	1225		9		
13	18	43	12	Wed.	Kason . .	9	1226		10	30	18
14	0	55	48	Fri.	Tagu . .	19	1227		11		
14	7	8	24	Sat.	Kason . .	1	1228		12	29	26
14	13	21	0	Sun.	Tagu . .	11	1229		13		
13	19	33	36	Mon.	,, . .	22	1230		14		
14	1	46	12	Wed.	Kason . .	5	1231		15	30	23
14	7	58	48	Th.	Tagu . .	14	1232		16		
14	14	11	24	Fri.	,, . .	25	1233		17		
13	20	24	0	Sat.	Kason . .	7	1234		18	30	20
14	2	36	36	Mon.	Tagu . .	17	1235	65	0		
14	8	49	12	Tu.	,, . .	28	1236		1	29	28
14	15	1	48	Wed.	,, . .	9	1237		2		
13	21	14	24	Th.	,, . .	20	1238		3		
14	3	27	0	Sat.	Kason . .	3	1239		4	29	24
14	9	39	36	Sun.	Tagu . .	13	1240		5		
14	15	52	12	Mon.	,, . .	24	1241		6		
13	22	4	48	Tu.	Kason . .	6	1242		7	30	21
14	4	17	24	Th.	Tagu . .	16	1243		8		
14	10	30	0	Fri.	,, . .	27	1244		9		
14	16	42	36	Sat.	Kason . .	9	1245		10	30	19
13	22	55	12	Sun	Tagu . .	18	1246		11		
14	5	7	48	Tu.	Kason . .	1	1247		12	29	26
14	11	20	24	Wed.	Tagu . .	11	1248		13		
14	17	33	0	Th.	,, . .	22	1249		14		
13	23	45	36	Fri.	Kason . .	4	1250		15	29	22
14	5	58	12	Sun.	Tagu . .	15	1251		16		
14	12	10	48	Mon.	,, . .	26	1252		17		
14	18	23	24	Tu.	Kason . .	8	1253		18	30	20
14	0	36	0	Th.	Tagu . .	18	1254	66	0		
14	6	48	36	Fri.	,, . .	29	1255		1	29	27
14	13	1	12	Sat.	,, . .	10	1256		2		
14	19	13	48	Sun.	,, . .	21	1257		3		
14	1	26	24	Tu.	Kason . .	4	1258		4	30	24
14	7	39	0	Wed.	Tagu . .	13	1259		5		
14	13	51	36	Th.	,, . .	24	1260		6		

TABLE I

ELEMENTS OF THE BURMESE CALENDAR FOR 172 YEARS

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
	M.	D.	H.	Week Day.	M.	D.
1	2	3	4	5	6	7
1899	March . .	12	5	Sat.	March . .	11
1900	,, . .	31	3	Fri.	,, . .	30
1901	,, . .	20	12	Tu.	,, . .	19
1902	April . .	8	9	Tu.	April . .	8
1903	March . .	28	18	Sat.	March . .	28
1904	,, . .	17	3	Wed.	,, . .	16
1905	April . .	5	0	Tu.	April . .	5
1906	March . .	25	9	Sat.	March . .	24
1907	,, . .	14	18	Wed.	,, . .	13
1908	April . .	1	16	Wed.	April . .	1
1909	March . .	22	0	Sun.	March . .	21
1910	,, . .	11	9	Th.	,, . .	10

continued.

FROM A. D. 1739 TO 1910, B. E. 1101 TO 1272.

Solar New Year (Thingyan Tet).							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April.											July.
14	20	4	12	Fri.	Kason . .	6	1261	66	7	29	21
15	2	16	48	Sun.	Tagu . .	17	1262		8		
15	8	29	24	Mon.	,, . .	28	1263		9	30	30
15	14	42	0	Tu.	,, . .	8	1264		10		
15	20	54	36	Wed.	,, .	19	1265		11		
15	3	7	12	Fri.	Kason . .	2	1266		12	29	26
15	9	19	48	Sat.	Tagu . .	12	1267		13		
15	15	32	24	Sun.	,, . .	23	1268		14		
15	21	45	0	Mon.	Kason . .	5	1269		15	30	24
15	3	57	36	Wed.	Tagu . .	15	1270		16		
15	10	10	12	Th.	,, . .	26	1271		17		
15	6	12	48	Fri.	Kason . .	8	1272		18	30	21

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
	M.	D.	H.	Week Day.	M.	D.
1	2	3	4	5	6	7
1909	March . .	22	0	Sun.	March . .	21
1910	,, . .	11	9	Th.	,, . .	10
1911	,, . .	30	7	Th.	,, . .	30
1912	,, . .	18	15	Mon.	,, . .	18
1913	April . .	6	12	Sun.	April . .	6
1914	March . .	26	22	Th.	March . .	26
1915	,, . .	16	6	Mon.	,, . .	15
1916	April . .	3	4	Sun.	April . .	2
1917	March . .	23	13	Th.	March . .	22
1918	,, . .	12	22	Mon.	,, . .	11
1919	,, . .	31	19	Mon.	,, . .	31
1920	,, . .	20	4	Fri.	,, . .	19
1921	April . .	8	1	Fri.	April . .	8
1922	March . .	28	11	Tu.	March . .	28
1923	,, . .	17	19	Sat.	,, . .	17
1924	April . .	4	17	Fri.	April . .	4
1925	March . .	25	2	Tu.	March . .	24
1926	,, . .	14	10	Sat.	,, . .	13
1927	April . .	2	8	Sat.	April . .	2
1928	March . .	21	17	Wed.	March . .	21
1929	,, . .	11	2	Sun.	,, . .	10
1930	,, . .	29	23	Sun.	,, . .	30
1931	,, . .	19	8	Th.	,, . .	19
1932	April . .	6	5	Wed.	April . .	6
1933	March . .	26	14	Sun.	March . .	26
1934	,, . .	15	23	Th.	,, . .	15
1935	April . .	3	20	Wed.	April . .	3
1936	March . .	23	5	Sun.	March . .	22
1937	,, . .	12	14	Th.	,, . .	11
1938	,, . .	31	12	Th.	,, . .	31
1939	,, . .	20	20	Mon.	,, . .	20
1940	April . .	7	18	Sun.	April . .	7
1941	March . .	28	3	Th.	March . .	27
1942	,, . .	17	12	Mon.	,, . .	16
1943	April . .	5	9	Mon.	April . .	5
1944	March . .	24	18	Fri.	March . .	24
1945	,, . .	14	3	Tu.	,, . .	13
1946	April . .	2	0	Tu.	April . .	2
1947	March . .	22	9	Sat.	March . .	22
1948	,, . .	10	18	Wed.	,, . .	10

TABLE II.

FOR 92 FUTURE YEARS FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362.

Solar New Year (Thingyan Tet.)							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April											July.
15	10	10	12	Th.	Tagu . .	26	1271	66	17		
15	16	22	48	Fri.	Kason . .	8	1272		18	30	21
15	22	35	24	Sat.	Tagu . .	17	1273	67	0		
15	4	48	0	Mon.	,, . .	29	1274		1	29	28
15	11	0	36	Tu.	,, . .	10	1275		2		
15	17	13	12	Wed.	Tagu . .	21	1276		3		
15	23	25	48	Th.	Kason . .	3	1277		4	29	25
15	5	38	24	Sat.	Tagu . .	14	1278		5		
15	11	51	0	Sun.	,, . .	25	1279		6		
15	18	3	36	Mon.	Kason . .	7	1280		7	30	22
16	0	16	12	Wed.	Tagu . .	17	1281		8		
15	6	28	48	Th.	,, . .	28	1282		9	30	30
15	12	41	24	Fri.	,, . .	8	1283		10		
15	18	54	0	Sat.	,, . .	19	1284		11		
16	1	6	36	Mon.	Kason . .	2	1285		12	29	27
15	7	19	12	Tu.	Tagu . .	12	1286		13		
15	13	31	48	Wed.	,, . .	23	1287		14		
15	19	44	24	Th.	Kason . .	5	1288		15	30	24
16	1	57	0	Sat.	Tagu . .	15	1289		16		
15	8	9	36	Sun.	,, . .	26	1290		17		
15	14	22	12	Mon.	Kason . .	8	1291		18	30	21
15	20	34	48	Tu.	Tagu . .	17	1292	68	0		
16	2	49	12	Th.	,, .	29	1293		1	29	29
15	9	1	48	Fri.	,, . .	10	1294		2		
15	15	14	24	Sat.	,, . .	21	1295		3		
15	21	27	0	Sun.	Kason . .	3	1296		4	29	25
16	3	39	36	Tu.	Tagu . .	14	1297		5		
15	9	52	12	Wed.	,, . .	25	1298		6		
15	16	4	48	Th.	Kason . .	7	1299		7	30	22
15	22	17	24	Fri.	Tagu . .	16	1300		8		
16	4	29	0	Sun.	,, . .	28	1301		9	29	30
15	10	42	36	Mon.	,, . .	9	1302		10		
15	16	55	12	Tu.	,, . .	20	1303		11		
15	23	7	48	Wed.	Kason . .	2	1304		12	30	27
16	5	20	24	Fri.	Tagu . .	12	1305		13		
15	11	33	0	Sat.	,, . .	23	1306		14		
15	17	45	36	Sun.	Kason . .	5	1307		15	30	24
15	23	58	12	Mon.	Tagu . .	14	1308		16		
16	6	10	48	Wed.	,, . .	26	1309		17		
15	12	22	24	Th.	Kason . .	8	1310		18	29	20

TABLE II

ELEMENTS OF THE BURMESE CALENDAR CALCULATED BY THANDEIKTA

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
				Week Day.		
	M.	D.	H.		M.	D.
1	2	3	4	5	6	7
1949	March	29	15	Tu.	March	29
1950	,,	19	0	Sat.	,,	18
1951	April	6	22	Fri.	April	6
1952	March	26	7	Tu.	March	25
1953	,,	15	15	Sat.	,,	14
1954	April	3	13	Sat.	April	3
1955	March	23	22	Wed.	March	23
1956	,,	12	7	Sun.	,,	12
1957	,,	31	4	Sun.	,,	31
1958	,,	20	13	Th.	,,	20
1959	April	8	10	Wed.	April	8
1960	March	27	19	Sun.	March	27
1961	,,	17	4	Th.	,,	16
1962	April	5	2	Th.	April	5
1963	March	25	10	Mon.	March	25
1964	,,	13	19	Fri.	,,	13
1965	April	1	17	Th.	April	1
1966	March	22	2	Mon.	March	21
1967	,,	11	10	Fri.	,,	10
1968	,,	29	8	Fri.	,,	29
1969	,,	18	17	Tu.	,,	18
1970	April	6	14	Mon.	April	6
1971	March	26	23	Fri.	March	26
1972	,,	15	8	Tu.	,,	14
1973	April	3	5	Tu.	April	3
1974	March	23	14	Sat.	March	23
1975	,,	12	23	Wed.	,,	12
1976	,,	30	21	Wed.	,,	31
1977	,,	20	5	Sun.	,,	20
1978	April	8	3	Sat.	April	8
1979	March	28	12	Wed.	March	28
1980	,,	16	21	Sun.	,,	16
1981	April	4	18	Sat.	April	4
1982	March	25	3	Wed.	March	24
1983	,,	14	12	Sun.	,,	13
1984	April	1	9	Sun.	April	1
1985	March	21	18	Th.	March	21
1986	,,	11	3	Mon.	,,	10
1987	,,	30	0	Mon.	,,	30
1988	,,	18	9	Fri.	,,	18

—continued.

FOR 92 FUTURE YEARS FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362.

Solar New Year (Thingyan Tet).							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April											July.
15	18	36	0	Fri.	Tagu . .	18	1311	69	0		
16	0	48	36	Sun.	Kason . .	1	1312		1	29	28
16	7	1	12	Mon.	Tagu . .	11	1313		2		
15	13	13	48	Tu.	,, . .	22	1314		3		
15	19	25	24	Wed.	Kason . .	4	1315		4	30	25
16	1	39	0	Fri.	Tagu . .	14	1316		5		
16	7	51	36	Sat.	,, . .	25	1317		6		
15	14	4	12	Sun.	Kason . .	7	1318		7	30	22
15	20	16	48	Mon.	Tagu . .	16	1319		8		
16	2	29	24	Wed.	,, . .	28	1320		9	29	30
16	8	42	0	Th.	,, . .	9	1321		10		
15	14	54	36	Fri.	,, . .	20	1322		11		
15	21	7	12	Sat.	Kason . .	2	1323		12	30	27
16	3	19	48	Mon.	Tagu . .	12	1324		13		
16	9	32	24	Tu.	,, . .	23	1325		14		
15	15	45	0	Wed.	Kason . .	5	1326		15	29	23
15	21	57	36	Th.	Tagu . .	15	1327		16		
16	4	10	12	Sat.	,, . .	27	1328		17		
16	10	22	48	Sun.	Kason . .	9	1329		18	30	21
15	16	35	24	Mon.	Tagu . .	18	1330	70	0		
15	22	48	0	Tu.	,, . .	29	1331		1	29	28
16	5	0	36	Th.	,, . .	11	1332		2		
16	11	13	12	Fri.	,, . .	22	1333		3		
15	17	25	48	Sat.	Kason . .	4	1334		4	30	25
15	23	38	24	Sun.	Tagu . .	13	1335		5		
16	5	51	0	Tu.	,, . .	25	1336		6		
16	12	3	36	Wed.	Kason . .	7	1337		7	30	23
15	18	16	12	Th.	Tagu . .	16	1338		8		
16	0	28	48	Sat.	,, . .	28	1339		9	29	29
16	6	41	24	Sun.	,, . .	9	1340		10		
16	12	54	0	Mon.	,, . .	20	1341		11		
15	19	6	36	Tu.	Kason . .	2	1342		12	29	26
16	1	19	12	Th.	Tagu . .	13	1343		13		
16	7	31	48	Fri.	,, . .	24	1344		14		
16	13	44	24	Sat.	Kason . .	6	1345		15	30	24
15	19	57	0	Sun.	Tagu . .	15	1346		16		
16	2	9	36	Tu.	,, . .	27	1347		17		
16	8	22	12	Wed.	Kason . .	9	1348		18	30	21
16	14	34	48	Th.	Tagu . .	18	1349	71	0		
15	20	47	24	Fri.	,, . .	29	1350		1	29	28

TABLE II

ELEMENTS OF THE BURMESE CALENDAR CALCULATED BY THANDEIKTA

A. D.	Mean New Moon, Mandalay Time.			Tagu waxing 1st.		
	M.	D.	H.	Week Day.	M.	D.
1	2	3	4	5	6	7
1989	April	6	6	Th.	April	6
1990	March	26	16	Mon.	March	26
1991	,,	16	0	Fri.	,,	15
1992	April	2	22	Th.	April	2
1993	March	23	7	Mon.	March	22
1994	,,	12	16	Fri.	,,	11
1995	,,	31	13	Fri.	,,	31
1996	,,	19	22	Tu.	,,	19
1997	April	7	19	Mon.	April	7
1998	March	28	4	Fri.	March	27
1999	,,	17	13	Tu.	,,	16
2000	April	4	11	Tu.	April	4

—*continued.*

FOR 92 FUTURE YEARS FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362.

Solar New Year (Thingyan Tet).							B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
English date.	H.	M.	S.	Week Day.	Burmese. M.	Burmese. D.		Cycles.	Years.		
8	9	10	11	12	13	14	15	16	17	18	19
April											July.
16	3	0	0	Sun.	Tagu	11	1351	71	2		
16	9	12	36	Mon.	,,	22	1352		3		
16	15	25	12	Tu.	Kason	4	1353		4	29	25
15	21	37	48	Wed.	Tagu	14	1354		5		
16	3	50	24	Fri.	,,	26	1355		6		
16	10	3	0	Sat.	Kason	8	1356		7	30	22
16	16	15	36	Sun.	Tagu	17	1357		8		
15	22	28	12	Mon.	,,	28	1358		9	29	29
16	4	40	48	Wed.	,,	10	1359		10		
16	10	53	24	Th.	,,	21	1360		11		
16	17	6	0	Fri.	Kason	3	1361		12	30	27
15	23	18	36	Sat.	Tagu	12	1362		13		

TABLE III.

ELEMENTS OF THE BURMESE CALENDAR FOR FUTURE YEARS, FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362, AS PROPOSED TO BE REGULATED BY DE CHESEAUX'S CYCLE OF 1040 YEARS, COMMENCING FROM 1281 B. E.

A. D.	Tagu waxing 1st.			Thingyan Tet.			B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
	Week Day.	M.	D.	Week Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12
					April 15th:						July.
1909	Sun.	March	21	Th.	Tagu	26	1271	66	17		
1910	Th.	,,	10	Fri.	Kason	8	1272		18	30	21
1911	Th.	,,	30	Sat.	Tagu	17	1273	67	0		
1912	Mon.	,,	18	Mon.	,,	29	1274		1	29	28
1913	Sun.	April	6	Tu.	,,	10	1275		2		
1914	Th.	March	26	Wed.	,,	21	1276		3		
1915	Mon.	,,	15	Th.	Kason	3	1277		4	30	26
1916	Mon.	April	3	Sat.	Tagu	13	1278		5		
1917	Fri.	March	23	Sun.	,,	24	1279		6		
1918	Tu.	,,	12	Mon.	Kason	6	1280		7	29	22
					April 8th.						
1919	Mon.	,,	31	Tu.	Tagu	9	1281		8		
1920	Fri.	,,	19	Th.	,,	21	1282		9	30	30
1921	Fri.	April	8	Fri.	,,	1	1283		10		
1922	Tu.	March	28	Sat.	,,	12	1284		11		
1923	Sat.	,,	17	Sun.	,,	23	1285		12	30	28
1924	Sat.	April	5	Tu.	,,	4	1286		13		
1925	Wed.	March	25	Wed.	,,	15	1287		14		
1926	Sun.	,,	14	Th.	,,	26	1288		15	29	24
1927	Sat.	April	2	Fri.	,,	7	1289		16		
1928	Wed.	March	21	Sun.	,,	19	1290		17		
1929	Sun.	,,	10	Mon.	Kason	1	1291		18	30	21
1930	Sun.	,,	30	Tu.	Tagu	10	1292	68	0		
1931	Th.	,,	19	Wed.	,,	21	1293		1	29	29
1932	Wed.	April	6	Fri.	,,	3	1294		2		
1933	Sun.	March	26	Sat.	,,	14	1295		3		
1934	Th.	,,	15	Sun.	,,	25	1296		4	30	26
1935	Th.	April	4	Mon.	,,	5	1297		5		
1936	Mon.	March	23	Wed.	,,	17	1298		6		
1937	Fri.	,,	12	Th.	,,	28	1299		7	29	22
1938	Th.	,,	31	Fri.	,,	9	1300		8		
1939	Mon.	,,	20	Sat.	,,	20	1301		9	30	29
1940	Mon.	April	8	Mon.	,,	1	1302		10		
1941	Fri.	March	28	Tu.	,,	12	1303		11		
1942	Tu.	,,	17	Wed.	,,	23	1304		12	29	27
1943	Mon.	April	5	Th.	,,	4	1305		13		
1944	Fri.	March	24	Sat.	,,	16	1306		14		
1945	Tu.	,,	13	Sun.	,,	27	1307		15	30	24

TABLE III.—*continued.*

ELEMENTS OF THE BURMESE CALENDAR FOR FUTURE YEARS, FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362, AS PROPOSED TO BE REGULATED BY DE CHESEAUX'S CYCLE OF 1040 YEARS, COMMENCING FROM 1281 B. E.

A. D.	Tagu waxing 1st.			Thingyan Tet.			B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
	Week Day.	M.	D.	Week. Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12
					April 8th.						July.
1946	Tu.	April	2	Mon.	Tagu	7	1308	68	16		
1947	Sat.	March	22	Tu.	,,	18	1309		17		
1948	Wed.	,,	10	Th.	Kason	1	1310		18	29	20
1949	Tu.	,,	29	Fri.	Tagu	11	1311	69	0		
1950	Sat.	,,	18	Sat.	,,	22	1312		1	30	29
1951	Sat.	April	7	Sun.	,,	2	1313		2		
1952	Wed.	March	26	Tu.	,,	14	1314		3		
1953	Sun.	,,	15	Wed.	,,	25	1315		4	29	25
1954	Sat.	April	3	Th.	,,	6	1316		5		
1955	Wed.	March	23	Fri.	,,	17	1317		6		
1956	Sun.	,,	11	Sun.	,,	29	1318		7	30	22
1957	Sun.	,,	31	Mon.	,,	9	1319		8		
1958	Th.	,,	20	Tu.	,,	20	1320		9	29	30
1959	Wed.	April	8	Wed.	,,	1	1321		10		
1960	Sun.	March	27	Fri.	,,	13	1322		11		
1961	Th.	,,	16	Sat.	,,	24	1323		12	30	27
1962	Th.	April	5	Sun.	,,	4	1324		13		
1963	Mon.	March	25	Mon.	,,	15	1325		14		
1964	Fri.	,,	13	Wed.	,,	27	1326		15	29	23
1965	Th.	April	1	Th.	,,	8	1327		16		
1966	Mon.	March	21	Fri.	,,	19	1328		17		
1967	Fri.	,,	10	Sat.	Kason	1	1329		18	30	21
1968	Fri.	,,	29	Mon.	Tagu	11	1330	70	0		
1969	Tu.	,,	18	Tu.	,,	22	1331		1	30	29
1970	Tu.	April	7	Wed.	,,	2	1332		2		
1971	Sat.	March	27	Th.	,,	13	1333		3		
1972	Wed.	,,	15	Sat.	,,	25	1334		4	29	25
1973	Tu.	April	3	Sun.	,,	6	1335		5		
1974	Sat.	March	23	Mon.	,,	17	1336		6		
1975	Wed.	,,	12	Tu.	,,	28	1337		7	30	23
1976	Wed.	,,	31	Th.	,,	9	1338		8		
1977	Sun.	,,	20	Fri.	,,	20	1339		9	29	30
1978	Sat.	April	8	Sat.	,,	1	1340		10		
1979	Wed.	March	28	Sun.	,,	12	1341		11		
1980	Sun.	,,	16	Tu.	,,	24	1342		12	30	27
1981	Sun.	April	5	Wed.	,,	4	1343		13		
1982	Th.	March	25	Th.	,,	15	1344		14		
1983	Mon.	,,	14	Fri.	,,	26	1345		15	29	24

TABLE III—*continued.*

ELEMENTS OF THE BURMESE CALENDAR FOR FUTURE YEARS, FROM A. D. 1909 TO 2000, B. E. 1271 TO 1362, AS PROPOSED TO BE REGULATED BY DE CHESEAUX'S CYCLE OF 1040 YEARS, COMMENCING FROM 1281 B. E.

A. D.	Tagu Waxing 1st.			Thingyan Tet.			B. E. New Year.	Expired		Days in Nayon.	Second Wazo Labyi.
	Week Day.	M.	D.	Week Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12
					April 8th.						July.
1984	Sun.	April	1	Sun.	Tagu	8	1346	70	16		
1985	Th.	March	21	Mon.	,,	19	1347		17		
1986	Mon.	,,	10	Tu.	Kason	1	1348		18	30	21
1987	Mon.	,,	30	Wed.	Tagu	10	1349	71	0		
1988	Fri.	,,	18	Fri.	,,	22	1350		1	29	28
1989	Th.	April	6	Sat.	,,	3	1351		2		
1990	Mon.	March	26	Sun.	,,	14	1352		3		
1991	Fri.	,,	15	Mon.	,,	25	1353		4	30	26
1992	Fri.	April	3	Wed.	,,	6	1354		5		
1993	Tu.	March	23	Th.	,,	17	1355		6		
1994	Sat.	,,	12	Fri.	,,	28	1356		7	29	22
1995	Fri.	,,	31	Sat.	,,	9	1357		8		
1996	Tu.	,,	19	Mon.	,,	21	1358		9	30	30
1997	Tu.	April	8	Tu.	,,	1	1359		10		
1998	Sat.	March	28	Wed.	,,	12	1360		11		
1999	Wed.	,,	17	Th.	,,	23	1361		12	29	27
2000	Tu.	April	4	Sat.	,,	5	1362		13		

TABLE IV.

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		Days in Nayon.	Wazo Labyi.
	Week Day.	M.	D.	English date.	Week Day.	Arakanese. M.	Arakanese. D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April.								July.
1739	Mon.	March	9	12	Sun.	2 Tagu	6	1101	57	18	29	19
1740	Sun.	,,	27	11	Mon.	Tagu	16	1102	58	0		
1741	Th.	,,	16	11	Tu.	,,	27	1103		1		
1742	Mon.	,,	5	12	Th.	2 Tagu	10	1104		2	30	16
1743	Mon.	,,	25	12	Fri.	Tagu	19	1105		3		
1744	Fri.	,,	13	11	Sat.	Kason	1	1106		4		
1745	Tu.	,,	2	11	Sun.	2 Tagu	12	1107		5	30	13
1746	Tu.	,,	22	12	Tu.	Tagu	22	1108		6		
1747	Sat.	,,	11	12	Wed.	2 Tagu	4	1109		7	29	21
1748	Fri.	,,	29	11	Th.	Tagu	14	1110		8		
1749	Tu.	,,	18	12	Sat.	,,	26	1111		9		
1750	Sat.	,,	7	12	Sun.	2 Tagu	8	1112		10	30	18
1751	Sat.	,,	27	12	Mon.	Tagu	17	1113		11		
1752	Wed.	,,	15	11	Tu.	,,	28	1114		12		
1753	Sun.	,,	4	12	Th.	2 Tagu	11	1115		13	29	14
1754	Sat.	,,	23	12	Fri.	Tagu	21	1116		14		
1755	Wed.	,,	12	12	Sat.	2 Tagu	3	1117		15	29	22
1756	Tu.	,,	30	11	Sun.	Tagu	13	1118		16		
1757	Sat.	,,	19	12	Tu.	,,	25	1119		17		
1758	Wed.	,,	8	12	Wed.	2 Tagu	7	1120		18	30	19
1759	Wed.	,,	28	12	Th.	Tagu	16	1121	59	0		
1760	Sun.	,,	16	11	Fri.	,,	27	1122		1		
1761	Th.	,,	5	12	Sun.	2 Tagu	10	1123		2	30	16
1762	Th.	,,	25	12	Mon.	Tagu	19	1124		3		
1763	Mon.	,,	14	12	Tu.	Kason	1	1125		4		
1764	Fri.	,,	2	11	Wed.	2 Tagu	12	1126		5	29	12
1765	Th.	,,	21	12	Fri.	Tagu	23	1127		6		
1766	Mon.	,,	10	12	Sat.	2 Tagu	5	1128		7	30	21
1767	Mon.	,,	30	12	Sun.	Tagu	14	1129		8		
1768	Fri.	,,	18	11	Mon.	,,	25	1130		9		
1769	Tu.	,,	7	12	Wed.	2 Tagu	8	1131		10	29	17
1770	Mon.	,,	26	12	Th.	Tagu	18	1132		11		
1771	Fri.	,,	15	12	Fri.	,,	29	1133		12		
1772	Tu.	,,	3	11	Sat.	2 Tagu	11	1134		13	30	14
1773	Tu.	,,	23	12	Mon.	Tagu	21	1135		14		
1774	Sat.	,,	12	12	Tu.	2 Tagu	3	1136		15	29	22
1775	Fri.	,,	31	12	Wed.	Tagu	13	1137		16		
1776	Tu.	,,	19	12	Fri.	,,	25	1138		17		

TABLE IV.—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		Days in Nayon.	Wazo Labyi,
						Arakanese.						
	Week Day.	M.	D.	English date.	Week Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April.								July.
1777	Sat.	March	8	12	Sat.	2 Tagu	7	1139	59	18	30	19
1778	Sat.	,,	28	12	Sun.	Tagu	16	1140	60	0		
1779	Wed.	,,	17	12	Mon.	,,	27	1141		1		
1780	Sun.	,,	5	12	Wed.	2 Tagu	10	1142		2	29	15
1781	Sat.	,,	24	12	Th.	Tagu	20	1143		3		
1782	Wed.	,,	13	12	Fri.	Kason	2	1144		4		
1783	Sun.	,,	2	12	Sat.	2 Tagu	13	1145		5	30	13
1784	Sun.	,,	21	12	Mon.	Tagu	23	1146		6		
1785	Th.	,,	10	12	Tu.	2 Tagu	5	1147		7	29	20
1786	Wed.	,,	29	12	Wed.	Tagu	15	1148		8		
1787	Sun.	,,	18	12	Th.	,,	26	1149		9		
1788	Th.	,,	6	12	Sat.	2 Tagu	9	1150		10	30	17
1789	Th.	,,	26	12	Sun.	Tagu	18	1151		11		
1790	Mon.	,,	15	12	Mon.	,,	29	1152		12		
1791	Fri.	,,	4	12	Tu.	2 Tagu	11	1153		13	30	15
1792	Fri.	,,	23	12	Th.	Tagu	21	1154		14		
1793	Tu.	,,	12	12	Fri.	2 Tagu	3	1155		15	29	22
1794	Mon.	,,	31	12	Sat.	Tagu	13	1156		16		
1795	Fri.	,,	20	12	Sun.	,,	24	1157		17		
1796	Tu.	,,	8	12	Tu.	2 Tagu	7	1158		18	29	18
1797	Mon.	,,	27	12	Wed.	Tagu	17	1159	61	0		
1798	Fri.	,,	16	12	Th.	,,	28	1160		1		
1799	Tu.	,,	5	12	Fri.	2 Tagu	10	1161		2	30	16
1800	Tu.	,,	25	13	Sun.	Tagu	20	1162		3		
1801	Sat.	,,	14	13	Mon.	Kason	2	1163		4		
1802	Wed.	,,	3	13	Tu.	2 Tagu	13	1164		5	30	14
1803	Wed.	,,	23	13	Wed.	Tagu	22	1165		6		
1804	Sun.	,,	11	13	Fri.	2 Tagu	5	1166		7	29	21
1805	Sat.	,,	30	13	Sat.	Tagu	15	1167		8		
1806	Wed.	,,	19	13	Sun.	,,	26	1168		9		
1807	Sun.	,,	8	14	Tu.	2 Tagu	9	1169		10	30	19
1808	Sun.	,,	27	13	Wed.	Tagu	18	1170		11		
1809	Th.	,,	16	13	Th.	,,	29	1171		12		
1810	Mon.	,,	5	13	Fri.	2 Tagu	11	1172		13	29	15
1811	Sun.	,,	24	14	Sun.	Tagu	22	1173		14		
1812	Th.	,,	12	13	Mon.	2 Tagu	4	1174		15	30	23
1813	Th.	April	1	13	Tu.	Tagu	13	1175		16		
1814	Mon.	March	21	13	Wed.	,,	24	1176		17		

TABLE IV—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		Days in Nayon.	Wazo Labyi.
						Arakanese.						
	Week Day.	M.	D.	English date.	Week Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April								July.
1815	Fri.	March	10	14	Fri.	2 Tagu	7	1177	61	18	29	20
1816	Th.	,,	28	13	Sat.	Tagu	17	1178	62	0		
1817	Mon.	,,	17	13	Sun.	,,	28	1179		1		
1818	Fri.	,,	6	13	Mon.	2 Tagu	10	1180		2	30	17
1819	Fri.	,,	26	14	Wed.	Tagu	20	1181		3		
1820	Tu.	,,	14	13	Th.	Kason	2	1182		4		
1821	Sat.	,,	3	13	Fri.	2 Tagu	13	1183		5	29	13
1822	Fri.	,,	22	13	Sat.	Tagu	23	1184		6		
1823	Tu.	,,	11	14	Mon.	2 Tagu	6	1185		7	30	22
1824	Tu.	,,	30	13	Tu.	Tagu	15	1186		8		
1825	Sat.	,,	19	13	Wed.	,,	26	1187		9		
1826	Wed.	,,	8	13	Th.	2 Tagu	8	1188		10	29	18
1827	Tu.	,,	27	14	Sat.	Tagu	19	1189		11		
1828	Sat.	,,	15	13	Sun.	Kason	1	1190		12		
1829	Wed.	,,	4	13	Mon.	2 Tagu	12	1191		13	30	15
1830	Wed.	,,	24	13	Tu.	Tagu	21	1192		14		
1831	Sun.	,,	13	14	Th.	2 Tagu	4	1193		15	29	23
1832	Sat.	,,	31	13	Fri.	Tagu	14	1194		16		
1833	Wed.	,,	20	13	Sat.	,,	25	1195		17		
1834	Sun.	,,	9	14	Mon.	2 Tagu	6	1196		18	30	20
1835	Sun.	,,	29	14	Tu.	Tagu	17	1197	63	0		
1836	Th.	,,	17	13	Wed.	,,	28	1198		1		
1837	Mon.	,,	6	13	Th.	2 Tagu	10	1199		2	29	16
1838	Sun.	,,	25	14	Sat.	Tagu	21	1200		3		
1839	Th.	,,	14	14	Sun.	Kason	3	1201		4		
1840	Mon.	,,	2	13	Mon.	2 Tagu	14	1202		5	30	13
1841	Mon.	,,	22	13	Tu.	Tagu	23	1203		6		
1842	Fri.	,,	11	14	Th.	2 Tagu	6	1204		7	29	21
1843	Th.	,,	30	14	Fri.	Tagu	16	1205		8		
1844	Mon.	,,	18	13	Sat.	,,	27	1206		9		
1845	Fri.	,,	7	13	Sun.	2 Tagu	9	1207		10	30	18
1846	Fri.	,,	27	14	Tu.	Tagu	19	1208		11		
1847	Tu.	,,	16	14	Wed.	Kason	1	1209		12		
1848	Sat.	,,	4	13	Th.	2 Tagu	12	1210		13	30	15
1849	Sat.	,,	24	13	Fri.	Tagu	21	1211		14		
1850	Wed.	,,	13	14	Sun.	2 Tagu	4	1212		15	29	23
1851	Tu.	April	1	14	Mon.	Tagu	14	1213		16		
1852	Sat.	March	20	13	Tu.	,,	25	1214		17		

TABLE IV.—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		Days in Nayon.	Wazo Labyi.
	Week Day.	M.	D.	English date.	Week Day.	Arakanees. M.	Arakanees. D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April.								July.
1853	Wed.	March	9	13	Wed.	2 Tagu	7	1215	63	18	30	20
1854	Wed.	,,	29	14	Fri.	Tagu	17	1216	64	0		
1855	Sun.	,,	18	14	Sat.	,,	28	1217		1		
1856	Th.	,,	6	13	Sun.	2 Tagu	10	1218		2	29	16
1857	Wed.	,,	25	13	Mon.	Tagu	20	1219		3		
1858	Sun.	,,	14	14	Wed.	Kason	3	1220		4		
1859	Th.	,,	3	14	Th.	2 Tagu	14	1221		5	30	14
1860	Th.	,,	22	13	Fri.	Tagu	23	1222		6		
1861	Mon.	,,	11	14	Sun.	2 Tagu	6	1223		7	29	21
1862	Sun.	,,	30	14	Mon.	Tagu	16	1224		8		
1863	Th.	,,	19	14	Tu.	,,	27	1225		9		
1864	Mon.	,,	7	13	Wed.	2 Tagu	9	1226		10	30	18
1865	Mon.	,,	27	14	Fri.	Tagu	19	1227		11		
1866	Fri.	,,	16	14	Sat.	Kason	1	1228		12		
1867	Tu.	,,	5	14	Sun.	2 Tagu	12	1229		13	29	15
1868	Mon.	,,	23	13	Mon.	Tagu	22	1230		14		
1869	Fri.	,,	12	14	Wed.	2 Tagu	5	1231		15	30	23
1870	Fri.	April	1	14	Th.	Tagu	14	1232		16		
1871	Tu.	March	21	14	Fri.	,,	25	1233		17		
1872	Sat.	,,	9	13	Sat.	2 Tagu	7	1234		18	29	19
1873	Fri.	,,	28	14	Mon.	Tagu	18	1235	65	0		
1874	Tu.	,,	17	14	Tu.	,,	29	1236		1		
1875	Sat.	,,	6	14	Wed.	2 Tagu	11	1237		2	30	17
1876	Sat.	,,	25	13	Th.	Tagu	20	1238		3		
1877	Wed.	,,	14	14	Sat.	Kason	3	1239		4		
1878	Sun.	,,	3	14	Sun.	2 Tagu	14	1240		5	30	14
1879	Sun.	,,	23	14	Mon.	Tagu	24	1241		6		
1880	Th.	,,	11	13	Tu.	2 Tagu	5	1242		7	29	21
1881	Wed.	,,	30	14	Th.	Tagu	16	1243		8		
1882	Sun.	,,	19	14	Fri.	,,	27	1244		9		
1883	Th.	,,	8	14	Sat.	2 Tagu	9	1245		10	29	18
1884	Wed.	,,	26	13	Sun.	Tagu	19	1246		11		
1885	Sun.	,,	15	14	Tu.	Kason	2	1247		12		
1886	Th.	,,	4	14	Wed.	2 Tagu	13	1248		13	30	15
1887	Th.	,,	24	14	Th.	Tagu	22	1249		14		
1888	Mon.	,,	12	13	Fri.	2 Tagu	4	1250		15	29	22
1889	Sun.	,,	31	14	Sun.	Tagu	15	1251		16		
1890	Th.	,,	20	14	Mon.	,,	26	1252		17		

TABLE IV.—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		Days in Nayon.	Wazo Labyi.
	Week Day.	M.	D.	English date.	Week Day.	Arakanese. M.	Arakanese. D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	15
				April.								July.
1891	Mon.	March	9	14	Tu.	2 Tagu	8	1253	65	18	30	20
1892	Mon.	,,	28	14	Th.	Tagu	18	1254	66	0		
1893	Fri.	,,	17	14	Fri.	,,	29	1255		1		
1894	Tu.	,,	6	14	Sat.	2 Tagu	11	1256		2	30	17
1895	Tu.	,,	26	14	Sun.	Tagu	20	1257		3		
1896	Sat.	,,	14	14	Tu.	Kason	3	1258		4		
1897	Wed.	,,	3	14	Wed.	2 Tagu	14	1259		5	29	13
1898	Tu.	,,	22	14	Th.	Tagu	24	1260		6		
1899	Sat.	,,	11	14	Fri.	2 Tagu	6	1261		7	29	21
1900	Fri.	,,	30	15	Sun.	Tagu	17	1262		8		
1901	Tu.	,,	19	15	Mon.	,,	28	1263		9		
1902	Sat.	,,	8	15	Tu.	2 Tagu	10	1264		10	30	19
1903	Sat.	,,	28	15	Wed.	Tagu	19	1265		11		
1904	W d.	,,	16	15	Fri.	Kason	2	1266		12		
1905	Sun.	,,	5	15	Sat.	2 Tagu	13	1267		13	30	16
1906	Sun.	,,	25	15	Sun.	Tagu	22	1268		14		
1907	Th.	,,	14	15	Mon.	2 Tagu	4	1269		15	29	24
1908	Wed.	April	1	15	Wed.	Tagu	15	1270		16		
1909	Sun.	March	21	15	Th.	,,	26	1271		17		
1910	Th.	,,	10	15	Fri.	2 Tagu	8	1272		18	30	21
1911	Th.	,,	30	15	Sat.	Tagu	17	1273	67	0		
1912	Mon.	,,	18	15	Mon.	,,	29	1274		1		
1913	Fri.	,,	7	15	Tu.	2 Tagu	11	1275		2	29	17
1914	Th.	,,	26	15	Wed.	Tagu	21	1276		3		
1915	Mon.	,,	15	15	Th.	Kason	3	1277		4		
1916	Fri.	,,	3	15	Sat.	2 Tagu	15	1278		5	30	24
1917	Fri.	,,	23	15	Sun.	,,	24	1279		6		
1918	Tu.	,,	12	15	Mon.	2 Tagu	6	1280		7	29	22
1919	Mon.	April	1	16	Wed.	Tagu	16	1281		8		
1920	Fri.	March	20	15	Th.	,,	27	1282		9		
1921	Tu.	,,	9	15	Fri.	2 Tagu	9	1283		10	30	19
1922	Tu.	,,	28	15	Sat.	Tagu	19	1284		11		
1923	Sat.	,,	17	16	Mon.	Kason	2	1285		12		
1924	Wed.	,,	5	15	Tu.	2 Tagu	13	1286		13	29	15
1925	Tu.	,,	24	15	Wed.	Tagu	23	1287		14		
1926	Sat.	,,	13	15	Th.	2 Tagu	5	1288		15	30	24
1927	Sat.	April	2	16	Sat.	Tagu	15	1289		16		
1928	Wed.	March	21	15	Sun.	,,	26	1290		17		

TABLE IV.—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st. Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired		ays in Nayon.	Wazo Labyi.
						Arakanese.						
	Week Day.	M.	D.	English Date.	Week Day.	M.	D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April								July.
1929	Sun.	March	10	15	Mon.	2 Tagu	8	1291	67	18	29	20
1930	Sat.	,,	29	15	Tu.	Tagu	18	1292	68	0		
1931	Wed.	,,	18	16	Th.	Kason	1	1293		1		
1932	Sun.	,,	6	15	Fri.	2 Tagu	12	1294		2	30	17
1933	Sun.	,,	26	15	Sat.	Tagu	21	1295		3		
1934	Th.	,,	15	15	Sun.	Kason	3	1296		4		
1935	Mon.	,,	4	16	Tu.	2 Tagu	15	1297		5	30	15
1936	Mon.	,,	23	15	Wed.	Tagu	24	1298		6		
1937	Fri.	,,	12	15	Th.	2 Tagu	6	1299		7	29	22
1938	Th.	,,	31	15	Fri.	Tagu	16	1300		8		
1939	Mon.	,,	20	16	Sun.	,,	28	1301		9		
1940	Fri.	,,	8	15	Mon.	2 Tagu	10	1302		10	29	18
1941	Th.	,,	27	15	Tu.	Tagu	20	1303		11		
1942	Mon.	,,	16	15	Wed.	Kason	2	1304		12		
1943	Fri.	,,	5	16	Fri.	2 Tagu	14	1305		13	30	16
1944	Fri.	,,	24	15	Sat.	Tagu	23	1306		14		
1945	Tu.	,,	13	15	Sun.	2 Tagu	5	1307		15	29	23
1946	Mon.	April	1	15	Mon.	Tagu	15	1308		16		
1947	Fri.	March	21	16	Wed.	,,	27	1309		17		
1948	Tu.	,,	9	15	Th.	2 Tagu	9	1310		18	30	20
1949	Tu.	,,	29	15	Fri.	Tagu	18	1311	69	0		
1950	Sat.	,,	18	16	Sun.	Kason	1	1312		1		
1951	Wed.	,	7	16	Mon.	2 Tagu	12	1313		2	30	18
1952	Wed.	,,	26	15	Tu.	Tagu	21	1314		3		
1953	Sun.	,,	15	15	Wed.	Kason	3	1315		4		
1954	Th.	,,	4	16	Fri.	2 Tagu	15	1316		5	29	14
1955	Wed.	,,	23	16	Sat.	Tagu	25	1317		6		
1956	Sun.	,,	11	15	Sun.	2 Tagu	7	1318		7	30	22
1957	Sun.	,,	31	15	Mon.	Tagu	16	1319		8		
1958	Th.	,,	20	16	Wed.	,,	28	1320		9		
1959	Mon.	,,	9	16	Th.	2 Tagu	10	1321		10	29	19
1960	Sun.	,,	27	15	Fri.	Tagu	20	1322		11		
1961	Th.	,,	16	15	Sat.	Kason	2	1323		12		
1962	Mon.	,,	5	16	Mon.	2 Tagu	14	1324		13	30	16
1963	Mon.	,,	25	16	Tu.	Tagu	23	1325		14		
1964	Fri.	,,	13	15	Wed.	2 Tagu	5	1326		15	29	23
1965	Th.	April	1	15	Th.	Tagu	15	1327		16		
1966	Mon.	March	21	16	Sat.	,,	27	1328		17		

TABLE IV.—*continued.*

ELEMENTS OF THE ARAKANESE CALENDAR FOR 262 YEARS, FROM A. D. 1739 TO 2000, B. E. 1101 TO 1362.

A. D.	Tagu or 1st Tagu waxing 1st.			Solar New Year (Thingyan Tet).				B. E. New Year.	Expired.		Days in Nayon.	Wazo Labyi.
	Week Day.	M.	D.	English Date.	Week Day.	Arakanese. M.	Arakanese. D.		Cycles.	Years.		
1	2	3	4	5	6	7	8	9	10	11	12	13
				April.								July.
1967	Fri.	March	10	16	Sun.	2 Tagu	9	1329	69	18	30	21
1968	Fri.	,,	29	15	Mon.	Tagu	18	1330	70	0		
1969	Tu.	,,	18	15	Tu.	,,	29	1331		1		
1970	Sat.	,,	7	16	Th.	2 Tagu	12	1332		2	29	17
1971	Fri.	,,	26	16	Fri.	Tagu	22	1333		3		
1972	Tu.	,,	14	15	Sat.	Kason	4	1334		4		
1973	Sat.	,,	3	15	Sun.	2 Tagu	15	1335		5	30	14
1974	Sat.	,,	23	16	Tu.	Tagu	25	1336		6		
1975	Wed.	,,	12	16	Wed.	2 Tagu	7	1337		7	29	22
1976	Tu.	,,	30	15	Th.	Tagu	17	1338		8		
1977	Sat.	,,	19	16	Sat.	,,	29	1339		9		
1978	Wed.	,,	8	16	Sun.	2 Tagu	11	1340		10	30	19
1979	Wed.	,,	28	16	Mon.	Tagu	20	1341		11		
1980	Sun.	,,	16	15	Tu.	Kason	2	1342		12		
1981	Th.	,,	5	16	Th.	2 Tagu	14	1343		13	29	15
1982	Wed.	,,	24	16	Fri.	Tagu	24	1344		14		
1983	Sun.	,,	13	16	Sat.	2 Tagu	6	1345		15	30	24
1984	Sun.	April	1	15	Sun.	Tagu	15	1346		16		
1985	Th.	March	21	16	Tu.	,,	27	1347		17		
1986	Mon.	,,	10	16	Wed.	2 Tagu	9	1348		18	29	20
1987	Sun.	,,	29	16	Th.	Tagu	19	1349	71	0		
1988	Th.	,,	17	15	Fri.	Kason	1	1350		1		
1989	Mon.	,,	6	16	Sun.	2 Tagu	13	1351		2	30	17
1990	Mon.	,,	26	16	Mon.	Tagu	22	1352		3		
1991	Fri.	,,	15	16	Tu.	Kason	4	1353		4		
1992	Tu.	,,	3	15	Wed.	2 Tagu	15	1354		5	30	14
1993	Tu.	,,	23	16	Fri.	Tagu	25	1355		6		
1994	Sat.	,,	12	16	Sat.	2 Tagu	7	1356		7	29	22
1995	Fri.	,,	31	16	Sun.	Tagu	17	1357		8		
1996	Tu.	,,	19	15	Mon.	,,	28	1358		9		
1997	Sat.	,,	8	16	Wed.	2 Tagu	11	1359		10	30	19
1998	Sat.	,,	28	16	Th.	Tagu	20	1360		11		
2999	Wed.	,,	17	16	Fri.	Kason	2	1361		12		15
2000	Sun.	,,	5	15	Sat.	2 Tagu	13	1362		13	29	

TABLE V.

Arakanese Wazo Labyi Week Day for 2000 Years.

A. D.	B. E.	1	2	3	4	5	6	7	8	9	10
639	1	1	0	4	1	1	5	4	1	5	5
649	11	2	6	5	2	2	6	3	2	6	3
659	21	3	0	4	4	1	0	4	1	0	4
669	31	1	1	5	4	1	5	5	2	6	6
679	41	3	0	6	3	2	6	3	3	0	4
689	51	4	1	0	4	1	1	5	2	1	5
699	61	2	2	6	5	2	6	6	3	0	6
709	71	3	3	0	4	3	0	4	4	1	5
719	81	5	2	1	5	2	1	5	2	2	6
729	91	5	2	6	6	3	0	0	4	1	0
739	101	4	4	2	5	4	1	5	5	2	1
749	111	5	2	2	6	3	2	6	3	3	0
759	121	6	3	0	0	4	1	0	4	4	1
769	131	5	4	1	5	5	2	6	6	3	2
779	141	6	3	3	0	4	3	0	6	3	0
789	151	0	4	1	1	5	2	1	5	5	2
799	161	6	5	2	6	6	3	2	6	3	3
809	171	0	4	3	0	4	4	1	0	4	1
819	181	1	5	2	2	6	5	2	6	5	2
829	191	6	6	3	0	0	4	3	0	4	4
839	201	1	5	4	1	1	5	2	1	5	2
849	211	2	6	3	2	6	6	3	0	6	3
859	221	0	0	4	3	0	4	4	1	5	4
869	231	1	5	5	2	1	5	2	2	6	3
879	241	3	0	6	3	0	0	4	1	0	4
889	251	1	1	5	4	1	5	5	2	6	5
899	261	2	2	6	3	2	6	3	3	0	4
909	271	3	0	0	4	1	0	4	1	1	5
919	281	4	1	5	5	2	6	6	3	0	6
929	291	3	2	6	3	3	0	4	4	1	0
939	301	4	1	1	5	2	1	5	2	2	6
949	311	5	2	6	6	3	0	6	3	3	0
959	321	4	3	0	4	4	1	5	5	2	1
969	331	5	2	1	5	2	2	6	5	2	6
979	341	6	3	0	0	4	1	0	4	3	0
989	351	4	4	1	5	5	2	1	5	2	2
999	361	6	3	2	6	3	3	0	6	3	0
1009	371	0	4	1	0	4	4	1	5	4	1
1019	381	5	5	2	6	6	3	2	6	3	2
1029	391	6	3	3	0	6	3	0	0	4	1
1039	401	1	5	2	1	5	5	2	6	5	2
1049	411	6	6	3	2	6	3	3	0	4	3
1059	421	0	4	4	1	0	4	1	1	5	2
1069	431	1	5	5	2	6	5	2	6	6	3
1079	441	0	0	4	3	0	4	4	1	5	4
1089	451	1	0	4	1	1	5	2	2	6	3
1099	461	2	6	6	3	0	6	3	0	0	4
1109	471	3	0	4	4	1	5	4	1	5	5
1119	481	2	1	5	2	2	6	3	3	0	6
1129	491	3	0	6	3	0	0	4	1	1	5

TABLE V.—*continued.*

Arakanese Wazo Labyi Week Day for 2000 Years.

A. D.	B. E.	1	2	3	4	5	6	7	8	9	10
1139	501	4	1	5	5	2	6	5	2	1	5
1149	511	2	2	6	3	3	0	4	3	0	0
1159	521	4	1	0	4	1	1	5	4	1	5
1169	531	5	2	6	5	2	6	6	3	2	6
1179	541	3	3	0	4	4	1	0	4	1	1
1189	551	5	2	1	5	2	2	6	5	2	6
1199	561	6	3	0	6	3	3	0	4	3	0
1209	571	4	4	1	5	4	1	6	5	2	1
1219	581	5	2	2	6	5	2	0	6	3	0
1229	591	0	4	1	0	4	3	2	4	4	1
1239	601	5	5	2	1	5	2	0	6	3	2
1249	611	6	3	3	0	6	3	1	0	4	1
1259	621	0	4	4	1	5	4	2	5	5	2
12'9	631	6	6	3	2	6	3	1	6	3	3
1279	641	0	6	3	0	5	4	2	0	5	2
1289	651	1	5	4	1	5	5	1	6	6	3
1299	661	2	6	3	3	6	5	2	0	4	4
1309	671	1	0	4	1	1	6	3	1	5	5
1319	681	2	6	5	2	2	6	4	0	0	4
1329	691	3	0	4	3	3	4	0	2	6	4
1339	701	1	1	5	4	4	0	5	3	0	5
1349	711	3	0	6	5	0	2	6	4	1	6
1359	721	4	1	5	6	1	0	1	5	0	5
1369	731	2	2	6	3	2	1	2	6	1	6
1379	741	3	0	0	4	3	1	3	5	0	0
1389	751	5	2	6	5	4	2	4	5	1	6
1399	761	3	3	0	4	5	3	5	4	2	0
1409	771	4	1	1	5	6	3	6	5	2	1
1419	781	5	2	6	6	0	4	0	6	3	2
1429	791	4	4	1	0	6	4	1	0	3	2
1439	801	5	2	2	6	6	5	2	6	4	3
1449	811	6	3	2	1	6	5	3	0	4	3
1459	821	5	4	1	2	1	6	4	1	5	4
1469	831	6	5	2	3	6	6	5	2	6	4
1479	841	0	4	3	2	0	6	6	3	5	5
1489	851	1	5	2	3	1	0	0	4	5	5
1499	861	0	6	3	4	0	1	1	5	6	6
1509	871	1	5	4	5	1	2	2	6	6	0
1519	881	2	6	3	4	2	2	3	0	6	1
1529	891	0	0	4	5	2	3	4	1	6	2
1539	901	1	5	5	6	3	4	5	2	6	3
1549	911	3	0	4	6	3	5	6	3	6	4
1559	921	1	1	5	0	4	5	0	4	6	5
1569	931	2	6	6	1	4	6	1	5	6	6
1579	941	3	0	4	2	5	6	2	6	6	0
1589	951	2	2	6	3	5	0	3	0	6	1
1599	961	3	0	0	4	6	0	4	1	6	2
1609	971	4	1	5	5	6	1	5	2	6	3
1619	981	3	2	6	6	0	1	6	3	6	4
1629	991	4	1	1	5	1	2	6	4	6	5

TABLE V—*continued.*

ARAKANESE WAZO LABYI WEEK DAY FOR 2000 YEARS.

A. D.	B. E.	1	2	3	4	5	6	7	8	9	10
1639	1001	5	2	1	5	2	2	6	3	3	0
1649	1011	4	3	0	0	4	1	0	4	1	1
1659	1021	5	4	1	5	5	2	6	5	2	6
1669	1031	6	3	2	6	3	3	0	4	3	0
1679	1041	0	4	1	0	4	1	1	5	2	2
1689	1051	6	5	2	6	6	3	0	6	3	2
1699	1061	6	3	3	0	4	4	1	5	4	1
1709	1071	1	5	2	1	5	2	2	6	5	2
1719	1081	6	6	3	0	6	3	0	0	4	3
1729	1091	0	4	4	1	5	5	2	1	5	2
1739	1101	1	5	2	2	6	3	3	0	6	3
1749	1111	0	0	4	1	0	4	3	0	4	4
1759	1121	1	5	5	2	6	5	2	2	6	3
1769	1131	2	6	3	3	0	6	3	0	0	4
1779	1141	1	0	4	1	1	5	4	1	5	5
1789	1151	2	6	6	3	2	6	3	2	6	3
1799	1161	3	0	4	4	1	0	4	1	1	5
1809	1171	2	1	5	5	2	6	5	2	6	6
1819	1181	3	0	6	3	3	0	4	3	0	4
1829	1191	4	1	0	4	1	1	5	2	1	5
1839	1201	2	2	6	5	2	6	6	3	0	0
1849	1211	4	3	0	4	4	1	5	4	1	5
1859	1221	5	2	1	5	2	2	6	3	2	6
1869	1231	6	3	0	6	3	0	0	4	1	1
1879	1241	5	4	1	5	4	1	5	5	2	1
1889	1251	5	2	2	6	3	3	0	4	3	0
1899	1261	6	3	0	0	4	1	1	5	4	1
1909	1271	5	5	2	6	5	2	6	6	3	2
1919	1281	6	3	3	0	4	3	0	0	4	1
1929	1291	0	4	1	1	5	2	2	6	5	2
1939	1301	6	5	2	6	6	3	2	6	3	3
1949	1311	0	4	4	1	5	4	1	1	5	2
1959	1321	1	5	2	2	6	5	2	6	6	3
1969	1331	0	6	3	0	0	4	3	0	4	4
1979	1341	1	5	4	1	1	5	2	1	5	2
1989	1351	2	6	3	3	0	6	3	0	0	4
1999	1361	1	0	4	3	0	4	4	1	5	5
2009	1371	2	6	5	2	2	6	3	2	6	3
2019	1381	3	0	6	3	0	0	4	1	0	4
2029	1391	1	1	5	4	1	5	5	2	6	6
2039	1401	3	2	6	3	2	6	3	3	0	4
2049	1411	4	1	0	4	1	1	5	2	1	5
2059	1421	4	1	5	5	2	6	6	3	0	6
2069	1431	3	3	0	4	3	0	4	4	1	0
2079	1441	4	1	1	5	2	1	5	2	2	6
2089	1451	5	2	6	6	3	0	0	4	3	0
2099	1461	4	3	0	4	4	1	5	5	2	1
2109	1471	5	2	2	6	3	2	6	6	3	0
2119	1481	6	3	0	0	4	1	0	4	4	1
2129	1491	5	4	1	5	5	2	1	5	2	2

TABLE V.—*continued.*

ARAKANESE WAZO LABYI WEEK DAY FOR 2000 YEARS.

A. D.	B. E.	1	2	3	4	5	6	7	8	9	10
2139	1501	6	3	2	6	3	3	0	6	3	0
2149	1511	0	4	1	1	5	4	1	5	5	2
2159	1521	6	5	2	6	6	3	2	6	3	3
2169	1531	0	4	3	0	0	4	1	0	4	1
2179	1541	1	5	2	1	5	5	2	6	5	2
2189	1551	6	6	3	2	6	3	3	0	4	4
2199	1561	1	5	4	1	0	4	1	1	5	2
2209	1571	2	6	5	2	6	6	3	0	6	3
2219	1581	0	0	4	3	0	4	4	1	5	4
2229	1591	1	1	5	2	1	5	2	2	6	3
2239	1601	3	0	6	3	0	6	3	0	0	4
2249	1611	3	0	4	4	1	5	5	2	6	5
2259	1621	2	2	6	3	2	6	3	3	0	6
2269	1631	3	0	0	4	1	0	4	1	1	5
2279	1641	4	1	5	5	2	6	5	2	2	6
2289	1651	3	2	6	3	3	0	4	4	1	0
2299	1661	4	1	1	5	2	1	5	4	1	5
2309	1671	5	2	6	6	3	0	6	3	3	0
2319	1681	4	3	0	4	4	1	0	4	1	1
2329	1691	5	2	1	5	2	2	6	5	2	6
2339	1701	6	3	0	0	4	3	0	4	3	0
2349	1711	4	4	1	5	5	2	1	5	2	2
2359	1721	6	3	2	6	5	2	6	6	3	0
2369	1731	0	4	1	0	4	4	1	5	4	1
2379	1741	5	5	2	1	5	2	2	6	3	2
2389	1751	6	3	3	0	6	3	0	0	4	1
2399	1761	1	5	4	1	5	4	1	5	5	2
2409	1771	6	6	3	2	6	3	3	0	4	3
2419	1781	0	0	4	1	0	4	1	1	5	2
2429	1791	1	5	5	2	6	5	2	6	6	3
2439	1801	2	6	3	3	0	4	3	0	4	4
2449	1811	1	0	4	1	1	5	2	2	6	5
2459	1821	2	6	6	3	0	6	3	0	0	4
2469	1831	3	0	4	4	1	5	4	1	1	5
2479	1841	2	1	5	2	2	6	3	2	6	6
2489	1851	3	0	6	3	0	0	4	3	0	4
2499	1861	4	1	5	5	2	6	5	2	1	5
2509	1871	2	2	6	3	3	0	6	3	0	0
2519	1881	4	1	0	4	1	1	5	4	1	5
2529	1891	5	2	6	5	2	2	6	3	2	6
2539	1901	3	3	0	4	4	1	0	4	1	0
2549	1911	4	1	1	5	4	1	5	5	2	6
2559	1921	6	3	0	6	3	3	0	4	3	0
2569	1931	4	4	1	0	4	1	1	5	2	1
2579	1941	5	2	2	6	5	2	6	6	3	0
2589	1951	6	3	3	0	4	3	0	4	4	1
2599	1961	5	5	2	1	5	2	2	6	3	2
2609	1971	6	5	2	6	6	3	0	0	4	1
2619	1981	0	4	4	1	5	4	1	5	5	2
2629	1991	1	5	2	2	6	3	2	6	3	3

TABLE VI.

THOKDADEIN, WEEK DAY, AND MOON'S LONGITUDE AT THE END OF THE 14TH DIDI OF SECOND WAZO, IN WATAT YEARS, FROM 1215 TO 1362, B. E., CALCULATED BY THANDEIKTA.

A. D.	B. E.	Thokdadein.	Week-Day.	Corrected Thokdadein.	Corrected Week Day.	Moon's longitude before correction.	Watat.
1855	1217	105	0			279° 17′	Ngè.
1858	1220	102	1			270 24	Gyi.
1861	1223	98	1			270 19	Ngè.
1864	1226	96	2			272 46	Gyi.
1866	1228	103	5			274 32	Ngè.
1869	1231	100	6			276 31	Gyi.
1872	1234	97	6	98	0	254 32	Gyi.
1874	1236	105	3			284 11	Ngè.
1877	1239	101	3			270 40	Ngè.
1880	1242	99	4			272 32	Gyi.
1883	1245	95	4	96	5	261 10	Gyi.
1885	1247	103	1			278 26	Ngè.
1888	1250	100	1			267 2	Ngè.
1891	1253	97	2			269 2	Gyi.
1893	1255	104	5			272 53	Ngè.
1896	1258	101	6			274 49	Gyi.
1899	1261	99	0	98	6	276 24	Ngè.
1901	1263	106	3			280 33	Gyi.
1904	1266	102	3			269 8	Ngè.
1907	1269	100	4			270 54	Gyi.
1910	1272	97	5			272 37	Gyi.
1912	1274	104	1			276 47	Ngè.
1915	1277	102	1			278 33	Ngè.
1918	1280	98	2			266 7	Gyi.
1920	1282	106	6			284 26	Gyi.
1923	1285	102	6			273 1	Ngè.
1926	1288	100	0	97	1	274 49	Gyi.
1929	1291	96	0			263 20	Gyi.
1931	1293	104	4			280 40	Ngè.
1934	1296	101	4			269 18	Ngè.
1937	1299	98	5			270 37	Gyi.
1939	1301	105	1			275 5	Ngè.
1942	1304	103	2	100	3	276 54	Gyi.
1945	1307	99	2			265 29	Gyi.
1948	1310	96	3			267 13	Ngè.
1950	1312	103	6			271 23	Ngè.
1953	1315	101	0			273 11	Gyi.
1956	1318	98	1			274 54	Gyi.
1958	1320	105	4			279 2	Ngè.
1961	1323	103	5			280 48	Gyi.
1964	1326	99	5			269 21	Ngè.
1967	1329	96	6			271 6	Gyi.
1969	1331	104	2			275 16	Ngè.
1972	1334	101	3	98	4	277 5	Gyi.
1975	1337	97	3			265 35	Gyi.
1977	1339	105	0			282 54	Ngè.

TABLE VI—*continued.*

THOKDADEIN, WEEK DAY, AND MOON'S LONGITUDE AT THE END OF THE 14TH DIDI OF SECOND WAZO, IN WATAT YEARS, FROM 1215 TO 1362, B. E., CALCULATED BY THANDEIKTA.

A. D.	B. E.	Thokdadein.	Week Day.	Corrected Thokdadein.	Corrected Week Day.	Moon's longitude before correction.	Watat.
1980	1342	102	0			271° 29′	Ngè.
1983	1345	99	1			273 15	Gyi.
1986	1348	95	1	96	2	261 50	Gyi.
1988	1350	104	5			279 15	Ngè.
1991	1353	100	5			267 46	Ngè.
1994	1356	98	6			270 53	Gyi.
1996	1358	105	2			273 37	Ngè.
1999	1361	102	3			275 22	Gyi.

TABLE VII.

Comparison of Epacts, as found by European and by Makaranta Methods.

A. D.	Mean New Moon, Mandalay Civil Time. M.	D.	H.	Thingyan Tet.	Mean Moon's Age at Midnight. D.	H.	Moon's Age by Makaranta. Yet Lun.	Awaman.
1	2			3	4		5	
				March.				
638	March	21	3	22	1	21	1	661
639	,,	10	12	22	12	12	12	524
640	February	27	20	22	24	4	24	398
641	March	17	18	22	5	6	5	261
642	,,	7	3	22	15	21	16	124
643	February	24	11	22	26	13	26	679
644	March	14	9	22	8	15	8	553
645	,,	3	18	22	19	6	19	416
646	,,	22	15	22	0	9	0	279
647	,,	12	0	22	11	0	11	142
648	February	29	9	22	22	15	23	16
649	March	19	7	22	3	17	3	571
650	,,	8	15	22	14	9	14	434
*	*			*	*	*	*	*
				April				
1739	April	8	17	12	4	7	4	355
1740	March	28	2	11	14	22	15	218
1741	,,	17	11	11	25	13	26	81
1742	April	5	8	12	7	16	7	647
1743	March	25	17	12	18	7	18	510
1744	,,	14	2	11	28	22	29	373
1745	April	1	23	11	10	1	10	236
1746	March	22	8	12	21	16	22	110
1747	April	10	6	12	2	18	2	665
1748	March	29	15	11	13	9	13	528
1749	,,	18	23	12	25	1	25	402
1750	April	6	21	12	6	3	6	265
1751	March	27	6	12	16	18	17	128
*	*			*	*	*	*	*
1833	March	21	6	13	23	18	24	197
1834	April	9	4	14	5	20	6	71
1835	March	29	13	14	16	11	16	626
1836	,,	17	21	13	27	3	27	489
1837	April	5	19	13	8	5	8	352
1838	March	26	4	14	19	20	20	226
1839	April	14	1	14	0	23	1	89
1840	,,	2	10	13	11	14	11	644
1841	March	22	19	13	22	5	22	507
1842	April	10	16	14	4	8	4	381
1843	March	31	1	14	14	23	15	244
1844	,,	19	10	13	25	14	26	107
1845	April	7	7	13	6	17	6	662
1846	March	27	16	14	18	8	18	536
1847	,,	17	1	14	28	23	29	399
1848	April	3	23	13	10	1	10	262
1849	March	24	8	13	20	16	21	125
1850	April	12	5	14	2	19	2	691
1851	,,	1	14	14	13	10	13	554
1852	March	20	23	13	24	1	24	417

COMPARISON OF EPACTS, AS FOUND BY EUROPEAN AND BY MAKARANTA METHODS.

A. D.	Mean New Moon, Mandalay Civil Time. M.	D.	H.	Thingyan Tet.	Mean Moon's Age at Midnight. D.	H.	Moon's Age by Makaranta. Yet Lun.	Awaman.
1	2			3	4		5	
				April.				
1853	April	8	20	13	5	4	5	280
1854	March	29	5	14	16	19	17	154
1855	,,	18	14	14	27	10	28	17
1856	April	5	11	13	8	13	8	572
1857	March	25	20	13	19	4	19	435
1858	April	13	18	14	1	6	1	309
1859	,,	3	3	14	11	21	12	172
1860	March	22	11	13	22	13	23	35
1861	April	10	9	14	4	15	4	601
1862	March	30	18	14	15	6	15	464
1863	,,	20	3	14	25	21	26	327
1864	April	7	0	13	7	0	7	190
1865	March	27	10	14	18	14	19	64
1866	,,	16	18	14	29	6	29	619
1867	April	4	15	14	10	9	10	482
1868	March	24	0	13	21	0	21	345
1869	April	11	21	14	3	3	3	219
1870	,,	1	6	14	13	18	14	82
1871	March	21	15	14	24	9	24	637
1872	April	8	13	13	5	11	5	500
1873	March	28	22	14	17	2	17	374
1874	,,	18	6	14	27	18	28	237
1875	April	6	4	14	8	20	9	100
1876	March	25	13	13	19	11	19	655
1877	April	13	10	14	1	14	1	529
1878	,,	2	19	14	12	5	12	392
1879	March	23	4	14	22	20	23	255
1880	April	10	1	13	3	23	4	118
1881	March	30	10	14	15	14	15	684
1882	,,	19	19	14	26	5	26	547
1883	April	7	16	14	7	8	7	410
1884	March	27	1	13	17	23	18	273
1885	April	14	23	14	0	1	0	147
1886	,,	4	8	14	10	16	11	10
1887	March	24	17	14	21	7	21	565
1888	April	11	14	13	2	10	2	428
1889	March	31	23	14	14	1	14	302
1890	,,	21	8	14	24	16	25	165
1891	April	9	5	14	5	19	6	28
1892	March	28	14	14	17	10	17	594
1893	,,	17	23	14	28	1	28	457
1894	April	5	20	14	9	4	9	320
1895	March	26	5	14	19	19	20	183
1896	April	13	3	14	1	21	2	57
1897	,,	2	12	14	12	12	12	612
1898	March	22	20	14	23	4	23	475
1899	April	10	18	14	4	6	4	338
1900	March	31	3	15	15	21	16	212

TABLE VIII.

COMPARISON O MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1873	1234	18	March . . .	28	28	21	36	
	1235	0	April . . .	26	27	10	20	
			May . . .	26	26	23	4	
			June . . .	24	25	11	48	
			July . . .	24	25	0	32	
			August . . .	22	23	13	16	
			September . .	21	22	2	0	
			October . . .	20	21	14	44	
			November . .	19	20	3	28	
			December . .	18	19	16	12	
1874			January . .	17	18	4	57	
			February . .	15	16	17	41	
			March . . .	17	18	6	25	
	1236	1	April . . .	15	16	19	9	
			May . . .	15	16	7	53	
			June . . .	13	14	20	37	
			July . . .	13	14	9	21	
			August . . .	12	12	22	5	2nd Wazo.
			September . .	10	11	10	49	
			October . .	10	10	23	38	
			November . .	8	9	12	17	
			December . .	8	9	1	1	
1875			January . .	6	7	13	45	
			February . .	5	6	2	29	
			March . . .	6	7	15	13	
			April . . .	5	6	3	58	
	1237	2	May . . .	4	5	16	42	
			June . . .	3	4	5	26	
			July . . .	2	3	18	10	
			August . . .	1	2	6	54	
			,, . . .	30	31	19	38	
			September . .	29	30	8	22	
			October . .	28	29	21	6	
			November . .	27	28	9	50	
			December . .	26	27	22	34	
1876			January . .	25	26	11	18	
			February . .	23	25	0	2	
			March . . .	24	25	12	46	
	1238	3	April . . .	22	24	1	30	
			May . . .	22	23	14	14	
			June . . .	20	22	2	58	
			July . . .	20	21	15	42	
			August . .	18	20	4	26	
			September . .	17	18	17	10	
			October . .	16	18	5	54	
			November . .	15	16	18	38	
			December . .	14	16	7	22	

TABLE VIII.—*continued.*

COMPARISON OF MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1877			January	13	14	20	7	
			February	11	13	8	51	
			March	13	14	21	35	
			April	11	13	10	19	
	1239	4	May	11	12	23	3	
			June	9	11	11	47	
			July	9	11	0	31	
			August	8	9	13	15	2nd Wazo.
			September	6	8	1	59	
			October	6	7	14	43	
			November	4	6	3	27	
			December	4	5	16	11	
1878			January	2	4	4	55	
			February	1	2	17	40	
			March	2	4	6	24	
			April	1	2	19	8	
	1240	5	,,	30				
			May		2	7	52	
			,,	30	31	20	36	
			June	28	30	9	20	
			July	28	29	22	4	
			August	26	28	10	48	
			September	25	26	23	32	
			October	24	26	12	16	
			November	23	25	1	0	
			December	22	24	13	44	
1879			January	21	23	2	28	
			February	19	21	15	12	
			March	21	23	3	56	
	1241	6	April	19	21	16	40	
			May	19	21	5	24	
			June	17	19	18	8	
			July	17	19	6	52	
			August	15	17	19	36	
			September	14	16	8	20	
			October	13	15	21	4	
			November	12	14	9	48	
			December	11	13	22	32	
1880			January	10	12	11	16	
			February	8	11	0	1	
			March	9	11	12	45	
			April	7	10	1	29	
	1242	7	May	7	9	14	13	
			June	6	8	2	57	Intercalary day.
			July	6	7	15	41	
			August	5	6	4	25	2nd Wazo.
			September	3	4	17	9	

TABLE VIII—*continued.*

Comparison of Mean New Moon and Burmese Civil Lagwe, Every Month for 29 Years.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Msan New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1880			October . .	3	4	5	53	
			November . .	1	2	18	37	
			December . .	1	2	7	21	
			,, . .	30	31	20	5	
1881			January . .	29	30	8	49	
			February . .	27	28	21	33	
			March . . .	29	30	10	17	
	1243	8	April . . .	27	28	23	1	
			May . .	27	28	11	45	
			June . . .	25	27	0	29	
			July . . .	25	26	13	13	
			August . . .	23	25	1	57	
			September . .	22	23	14	41	
			October . .	21	23	3	25	
			November . .	20	21	16	9	
			December . .	19	21	4	53	
1882			January . .	18	19	17	38	
			February . .	16	18	6	22	
			March . . .	18	19	19	6	
	1244	9	April . . .	16	18	7	50	
			May . . .	16	17	20	34	
			June . . .	14	16	9	18	
			July . . .	14	15	22	2	
			August . . .	12	14	10	46	
			September . .	11	12	23	30	
			October . .	10	12	12	14	
			November . .	9	11	0	58	
			December . .	8	10	13	42	
1883			January . .	7	9	2	26	
			February . .	5	7	15	11	
			March . . .	7	9	3	55	
			April . . .	5	7	16	39	
	1245	10	May . . .	5	7	5	23	
			June . . .	4	5	18	7	Intercalary day.
			July . . .	4	5	6	51	
			August . . .	3	3	19	35	2nd Wazo.
			September . .	1	2	8	19	
			October . .	1	1	21	3	
			,, . .	30	31	9	47	
			November . .	29	29	22	31	
			December . .	28	29	11	15	
1884			January . .	27	27	23	59	
			February . .	25	26	12	43	
			March . . .	26	27	1	27	
	1246	11	April . . .	24	25	14	11	
			May . . .	24	25	2	55	
			June . . .	22	23	15	39	

TABLE VIII—*continued.*

COMPARISON OF MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Months.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1884			July	22	23	4	23	
			August	20	21	17	7	
			September	19	20	5	51	
			October	18	19	18	35	
			November	17	18	7	19	
			December	16	17	20	3	
1885			January	15	16	8	48	
			February	13	14	21	32	
			March	15	16	10	16	
			April	13	14	23	0	
	1247	12	May	13	14	11	44	
			June	11	13	0	28	
			July	11	12	13	12	
			August	10	11	1	56	2nd Wazo.
			September	8	9	14	40	
			October	8	9	3	24	
			November	6	7	16	8	
			December	6	7	4	52	
1886			January	4	5	17	36	
			February	3	4	6	21	
			March	4	5	19	5	
			April	3	4	7	49	
	1248	13	May	2	3	20	33	
			June	1	2	9	17	
			,,	30				
			July		1	22	1	
			,,	30	31	10	45	
			August	28	29	23	29	
			September	27	28	12	13	
			October	26	28	0	57	
			November	25	26	13	41	
			December	24	26	2	25	
1887			January	23	24	15	9	
			February	21	23	3	53	
			March	23	24	16	37	
	1249	14	April	21	23	5	21	
			May	21	22	18	5	
			June	19	21	6	49	
			July	19	20	19	33	
			August	17	19	8	17	
			September	16	17	21	1	
			October	15	17	9	45	
			November	14	15	22	29	
			December	13	15	11	13	
1888			January	12	13	23	57	
			February	10	12	12	41	
			March	11	13	1	26	

TABLE VIII—*continued.*

COMPARISON OF MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1888			April . . .	9	11	14	10	
	1250	15	May . . .	9	11	2	54	
			June . . .	7	9	15	38	
			July . . .	7	9	4	22	
			August . . .	6	7	17	6	2nd Wazo.
			September . .	4	6	5	50	
			October . .	4	5	18	34	
			November . .	2	4	7	18	
			December . .	2	3	20	2	
			,, . .	31				
1889			January . .		2	8	46	
			,, . .	30	31	21	30	
			February . .	28				
			March . . .		2	10	14	
			,, . . .	30	31	22	59	
	1251	16	April . . .	28	30	11	43	
			May . . .	28	30	0	27	
			June . . .	26	28	13	11	
			July . . .	26	28	1	55	
			August . . .	24	26	14	39	
			September . .	23	25	3	23	
			October . .	22	24	16	7	
			November . .	21	23	4	51	
			December . .	20	22	17	35	
1890			January . .	19	21	6	19	
			February . .	17	19	19	3	
			March . . .	19	21	7	47	
	1252	17	April . . .	17	19	20	31	
			May . . .	17	19	9	15	
			June . . .	15	17	21	59	
			July . . .	15	17	10	43	
			August . .	13	15	23	27	
			September . .	12	14	12	11	
			October . .	11	14	0	55	
			November . .	10	12	13	39	
			December . .	9	12	2	23	
1891			January . .	8	10	15	7	
			February . .	6	9	3	52	
			March . . .	8	10	16	36	
			April . . .	6	9	5	20	
	1253	18	May . . .	6	8	18	4	
			June . . .	5	7	6	48	Intercalary day.
			July . . .	5	6	19	32	
			August . . .	4	5	8	16	2nd Wazo.
			September . .	2	3	21	0	
			October . .	2	3	9	44	
			,, . . .	31				

TABLE VIII—*continued.*

Comparison of Mean New Moon and Burmese Civil Lagwe, Every Month for 29 Years.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D.	H.	M.	Leap Years.
1	2	3	4	5	6			7
1891			November . .		1	22	28	
			,, . .	30				
			December . .		1	11	12	
			,, . .	29	30	23	56	
1892			January . .	28	29	12	41	
			February . .	26	28	1	25	
			March . .	27	28	14	9	
	1254	0	April . . .	25	27	2	53	
			May . . .	25	26	15	37	
			June . . .	23	25	4	21	
			July . . .	23	24	17	5	
			August . . .	21	23	5	49	
			September . .	20	21	18	33	
			October . .	19	21	7	17	
			November . .	18	19	20	1	
			December . .	17	19	8	45	
1893			January . .	16	17	21	29	
			February . .	14	16	10	13	
			March . . .	16	17	22	57	
	1255	1	April . . .	14	16	11	41	
			May . . .	14	16	0	25	
			June . . .	12	14	13	9	
			July . . .	12	14	1	53	
			August . . .	11	12	14	37	2nd Wazo.
			September . .	9	11	3	21	
			October . .	9	10	16	5	
			November . .	7	9	4	49	
			December . .	7	8	17	33	
1894			January . .	5	7	6	17	
			February . .	4	5	19	2	
			March . . .	5	7	7	46	
			April . . .	4	5	20	30	
	1256	2	May . . .	3	5	9	14	
			June . . .	2	3	21	58	
			July . . .	1	3	10	42	
			,, . . .	31				
			August . . .		1	23	26	
			,, . . .	29	31	12	10	
			September . .	28	30	0	54	
			October . .	27	29	13	38	
			November . .	26	28	2	22	
			December . .	25	27	15	6	
1895			January . .	24	26	3	50	
			February . .	22	24	16	31	
			March . . .	24	26	5	18	
	1257	3	April . . .	22	24	18	2	
			May . . .	22	24	6	46	

TABLE VIII—*continued.*

COMPARISON OF MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D. H. M.	Leap Years.
1	2	3	4	5	6	7
1895			June . . .	20	22 19 30	
			July . . .	20	22 8 14	
			August . . .	18	20 20 58	
			September . .	17	19 9 42	
			October . .	16	18 22 26	
			November . .	15	17 11 10	
			December . .	14	16 23 54	
1896			January . .	13	15 12 39	
			February . .	11	14 1 23	
			March . . .	12	14 14 7	
			April . . .	10	13 2 51	
	1258	4	May . . .	10	12 15 35	
			June . . .	9	11 4 19	Intercalary day.
			July . . .	9	10 17 3	
			August . . .	8	9 5 47	2nd Wazo.
			September . .	6	7 18 31	
			October . .	6	7 7 15	
			November . .	4	5 19 59	
			December . .	4	5 8 43	
1897			January . .	2	3 21 27	
			February . .	1	2 10 11	
			March . .	2	3 22 56	
			April . . .	1	2 11 40	
	1259	5	,, . . .	30		
			May . . .		2 0 24	
			,, . . .	30	31 13 8	
			June . . .	28	30 1 52	
			July . . .	28	29 14 36	
			August . .	26	28 3 20	
			September . .	25	26 16 4	
			October . .	24	26 4 48	
			November . .	23	24 17 32	
			December . .	22	24 6 16	
1898			January . .	21	22 19 0	
			February . .	19	21 7 44	
			March . . .	21	22 20 28	
	1260	6	April . . .	19	21 9 12	
			May . . .	19	20 21 56	
			June . . .	17	19 10 40	
			July . . .	17	18 23 24	
			August . .	15	17 12 8	
			September . .	14	16 0 52	
			October . .	13	15 13 36	
			November . .	12	14 2 20	
			December . .	11	13 15 4	
1899			January . .	10	12 3 48	
			February . .	8	10 16 32	

TABLE VIII—*continued.*

COMPARISON OF MEAN NEW MOON AND BURMESE CIVIL LAGWE, EVERY MONTH FOR 29 YEARS.

A. D.	B. E.	Cycle Year.	Month.	Burmese Calendar Lagwe.	Mean New Moon, Mandalay Civil Time. D. H. M.	Leap Years.
1	2	3	4	5	6	7
1899			March . .	10	12 5 16	
			April . . .	8	10 18 1	
	1261	7	May . . .	8	10 6 45	
			June . . .	6	8 19 29	
			July . . .	6	8 8 13	
			August . . .	5	6 20 57	2nd Wazo.
			September . .	3	5 9 41	
			October . .	3	4 22 25	
			November . .	1	3 11 9	
			December . .	1	2 23 53	
			,, . .	30		
1900			January . .		1 12 37	
			,, . .	29	31 1 22	
			February . .	27		
			March . . .		1 14 6	
			,, . . .	29	31 2 50	
	1262	8	April . . .	27	29 15 34	
			May . . .	27	29 4 18	
			June . . .	25	27 17 2	
			July . . .	25	27 5 46	
			August . . .	23	25 18 30	
			September . .	22	24 7 14	
			October . .	21	23 19 58	
			November . .	20	22 8 42	
			December . .	19	21 21 26	
1901			January . .	18	20 10 10	
			February . .	16	18 22 54	
			March . . .	18	20 11 38	
	1263	9	April . . .	16	19 0 22	
			May . . .	16	18 13 6	
			June . . .	15	17 1 50	Intercalary day.
			July . . .	15	16 14 34	
			August . . .	14	15 3 18	2nd Wazo.
			September . .	12	13 16 2	
			October . .	12	13 4 46	
			November . .	10	11 17 30	
			December . .	10	11 6 14	
1902			January . .	8	9 18 58	
			February . .	7	8 7 43	
			March . . .	8	9 20 27	
			April . . .	7	8 9 11	

TABLE IX. PART I.

ENGLISH DATES CORRESPONDING TO THE

Tagu.		Kason.		Nayon.		Wazo.		Wagaung.		Tawthalin.	
March	13	April	11	May	11	June	9	July	9	August	7
	14		12		12		10		10		8
	15		13		13		11		11		9
	16		14		14		12		12		10
	17		15		15		13		13		11
	18		16		16		14		14		12
	19		17		17		15		15		13
	20		18		18		16		16		14
	21		19		19		17		17		15
	22		20		20		18		18		16
	23		21		21		19		19		17
	24		22		22		20		20		18
	25		23		23		21		21		19
	26		24		24		22		22		20
	27		25		25		23		23		21
	28		26		26		24		24		22
	29		27		27		25		25		23
	30		28		28		26		26		24
	31		29		29		27		27		25
April	1		30		30		28		28		26
	2	May	1		31		29		29		27
	3		2	June	1		30		30		28
	4		3		2	July	1		31		29
	5		4		3		2	August	1		30
	6		5		4		3		2		31
	7		6		5		4		3	Sept.	1
	8		7		6		5		4		2

COMMON YEAR.

FIRST DAY OF EACH BURMESE MONTH.

Thadingyut.	Tasaungmon.	Natdaw.	Pyatho.	Tabodwe.	Tabaung.
Sept. 6	October 5	Nov. 4	Dec. 3	Jan. 2	Jan. 31
7	6	5	4	3	Feb. 1
8	7	6	5	4	2
9	8	7	6	5	3
10	9	8	7	6	4
11	10	9	8	7	5
12	11	10	9	8	6
13	12	11	10	9	7
14	13	12	11	10	8
15	14	13	12	11	9
16	15	14	13	12	10
17	16	15	14	13	11
18	17	16	15	14	12
19	18	17	16	15	13
20	19	18	17	16	14
21	20	19	18	17	15
22	21	20	19	18	16
23	22	21	20	19	17
24	23	22	21	20	18
25	24	23	22	21	19
26	25	24	23	22	20
27	26	25	24	23	21
28	27	26	25	24	22
29	28	27	26	25	23
30	29	28	27	26	24
October 1	30	29	28	27	25
2	31	30	29	28	26

TABLE IX. PART II.

ENGLISH DATES CORRESPONDING TO THE

Tagu.	Kason.	Nayon.	1st Wazo.	2nd Wazo.	Wagaung.	Tawthalin.
March 2	Mar. 31	April 30	May 29	June 28	July 28	Aug. 26
3	April 1	May 1	30	29	29	27
4	2	2	31	30	30	28
5	3	3	June 1	July 1	31	29
6	4	4	2	2	Aug. 1	30
7	5	5	3	3	2	31
8	6	6	4	4	3	Sept. 1
9	7	7	5	5	4	2
10	8	8	6	6	5	3
11	9	9	7	7	6	4
12	10	10	8	8	7	5
13	11	11	9	9	8	6
14	12	12	10	10	9	7
15	13	13	11	11	10	8
16	14	14	12	12	11	9
17	15	15	13	13	12	10
18	16	16	14	14	13	11
19	17	17	15	15	14	12
20	18	18	16	16	15	13

WANGETAT YEAR.

FIRST DAY OF EACH BURMESE MONTH.

Thadingyut.		Tasaungmon.		Natdaw.		Pyatho.		Tabodwe.		Tabaung.	
Sept.	25	Oct.	24	Nov.	23	Dec.	22	Jan.	21	Feb.	19
	26		25		24		23		22		20
	27		26		25		24		23		21
	28		27		26		25		24		22
	29		28		27		26		25		23
	30		29		28		27		26		24
Oct.	1		30		29		28		27		25
	2		31		30		29		28		26
	3	Nov.	1	Dec.	1		30		29		27
	4		2		2		31		30		28
	5		3		3	Jan.	1		31		
	6		4		4		2	Feb.	1		
	7		5		5		3		2		
	8		6		6		4		3		
	9		7		7		5		4		
	10		8		8		6		5		
	11		9		9		7		6		
	12		10		10		8		7		
	13		11		11		9		8		

TABLE IX. PART III.

ENGLISH DATES CORRESPONDING TO THE

Tagu.	Kason.	Nayon.	1st Wazo.	2nd Wazo.	Wagaung.	Tawthalin.
March 2	March 31	April 30	May 30	June 29	July 29	Aug. 27
3	April 1	May 1	31	30	30	28
4	2	2	June 1	July 1	31	29
5	3	3	2	2	Aug. 1	30
6	4	4	3	3	2	31
7	5	5	4	4	3	Sept. 1
8	6	6	5	5	4	2
9	7	7	6	6	5	3
10	8	8	7	7	6	4
11	9	9	8	8	7	5
12	10	10	9	9	8	6
13	11	11	10	10	9	7
14	12	12	11	11	10	8
15	13	13	12	12	11	9
16	14	14	13	13	12	10
17	15	15	14	14	13	11
18	16	16	15	15	14	12
19	17	17	16	16	15	13
20	18	18	17	17	16	14

WAGYITAT YEAR.

FIRST DAY OF EACH BURMESE MONTH.

Thadingyut.		Tasaungmon.		Natdaw.		Pyatho.		Tabodwe.		Tabaung.	
Sept.	26	Oct.	25	Nov.	24	Dec.	23	Jan.	22	Feb.	20
	27		26		25		24		23		21
	28		27		26		25		24		22
	29		28		27		26		25		23
	30		29		28		27		26		24
Oct.	1		30		29		28		27		25
	2		31		30		29		28		26
	3	Nov.	1	Dec.	1		30		29		27
	4		2		2		31		30		28
	5		3		3	Jan.	1		31		
	6		4		4		2	Feb.	1		
	7		5		5		3		2		
	8		6		6		4		3		
	9		7		7		5		4		
	10		8		8		6		5		
	11		9		9		7		6		
	12		10		10		8		7		
	13		11		11		9		8		
	14		12		12		10		9		

TABLE X.

PART I.—COMMON YEAR.

WEEK-DAY OF ANY GIVEN DAY IN EACH BURMESE MONTH.

Tagu . . .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Kason . . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Nayon . . .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
Wazo . . .	Th.	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.
Wagaung . .	Sat.	Sun.	Mon.	Tu.	Wed.	Th.	Fri.
Tawthalin . .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Thadingyut . .	Tu.	Wed.	Th.	Fri.	Sat.	Sun.	Mon.
Tasaungmon .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
Natdaw . .	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.	Th.
Pyatho . .	Sat.	Sun.	Mon.	Tu.	Wed.	Th.	Fri.
Tabodwe . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Tabaung . .	Tu.	Wed.	Th.	Fri.	Sat.	Sun.	Mon.

TABLE X.

PART II.—WANGETAT YEAR.

WEEK-DAY OF ANY GIVEN DAY IN EACH BURMESE MONTH.

Tagu . . .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Kason . . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Nayon . . .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
First Wazo . .	Th.	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.
Second Wazo .	Sat.	Sun.	Mon.	Tu.	Wed.	Th.	Fri.
Wagaung . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Tawthalin . .	Tu.	Wed.	Th.	Fri.	Sat.	Sun.	Mon.
Thadingyut . .	Th.	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.
Tasaungmon .	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.	Th.
Natdaw . .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Pyatho . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Tabodwe . .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
Tabaung . .	Th.	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.

TABLE X.

PART III.—WAGYITAT YEAR.

WEEK-DAY OF ANY GIVEN DAY IN EACH BURMESE MONTH.

Tagu . . .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Kason . . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Nayon . . .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
First Wazo . .	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.	Th.
Second Wazo .	Sun.	Mon.	Tu.	Wed.	Th.	Fri.	Sat.
Wagaung . .	Tu.	Wed.	Th.	Fri.	Sat.	Sun.	Mon.
Tawthalin . .	Wed.	Th.	Fri.	Sat.	Sun.	Mon.	Tu.
Thadingyut . .	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.	Th.
Tasaungmon .	Sat.	Sun.	Mon.	Tu.	Wed.	Th.	Fri.
Natdaw . .	Mon.	Tu.	Wed.	Th.	Fri.	Sat.	Sun.
Pyatho . .	Tu.	Wed.	Th.	Fri.	Sat.	Sun.	Mon.
Tabodwe . .	Th.	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.
Tabaung . .	Fri.	Sat.	Sun.	Mon.	Tu.	Wed.	Th.

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