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A brief contemporary history of the chinese calendar

LIU BAOLIN AND F. RICHARD STEPHENSON

In our previous article, which appeared in the June issue of **ORION**, we outlined the operational rules of the Chinese luni-solar calendar. Now we discuss its history.

For official purposes, China – in common with virtually all other countries throughout the world – adopts the Gregorian calendar. However, Chinese daily newspapers, in addition to giving the Gregorian date, also state the date according to the traditional (luni-solar) calendar. Yearly calendars in China also use both systems. Civil festivals are always held according to the traditional Chinese calendar rather than the Gregorian one. For instance, the Spring Festival – the most important festival – is New Year's day of the lunar calendar. Other examples are: the Lantern Festival on the 15th day of the first lunar month; the Dragon Boat Festival on the 5th day of the fifth month; the Mid-Autumn Festival on the 15th day of the eighth month; the Double Ninth Festival on the 9th day of the ninth month.

FESTIVAL	LUNAR DATE (month, day)	1998	1999	2000
New year	I, 1	Jan 28	Feb 16	Feb 5
Lanterns	I, 15	Feb 11	Mar 2	Feb 19
Dragon Boat	V, 5	May 30	Jun 18	Jun 6
Mid-Autumn	VIII, 15	Oct 5	Sep 24	Sep 12
Double 9th	IX, 9	Oct 28	Oct 17	Oct 6

Table 1. Dates of major Chinese festivals from A.D. 1998 to 2000.

In country districts, the traditional Chinese calendar is still customarily used – for example for fair dates, birthday celebrations, etc. Overseas Chinese also still follow the various festivals according to the Chinese lunar calendar. Historically the Chinese calendar was propagated to Korea, Japan and Vietnam. In the former British colony of Hong Kong, and also in Korea and Vietnam, it is still used alongside the Gregorian calendar, and is known as the lunar calendar. However, in Japan since the reform of the calendar in 1873, the Gregorian calendar has been virtually in exclusive use. Nevertheless, dates in Japan are popularly given in terms of the «Old Calendar» – for example wall calendars list the first day of each lunar month.

It is necessary for us to distinguish between: (i) calendar schemes devised for prediction; and (ii) the annual calendar itself, produced for general use. Throughout the remainder of this article the word «calendar» will normally imply a calendar scheme, as distinct from annual calendars. It should be stressed that the Chinese term *li* (usually translated «calendar») is wide in scope. Ancient Chinese calendars were not limited

to the arrangement of the years, months and days. They also included methods for predicting the motion of the Sun, Moon and five bright planets and also eclipses.

Throughout the history of China, more than one hundred separate calendars have been devised. Many of these were introduced for political reasons and differed only slightly from their predecessors. However, other calendars were based on revised determinations of key parameters, such as the length of the year and lunar month.

The traditional Chinese calendar currently in use has a history stretching back over several centuries. It developed from the *Shixian Li* (Constant Conformity Calendar) of the Qing Dynasty. This dynasty, the last in Chinese history, extended from A.D. 1644 to 1911. In the first year of the Qing Dynasty, the calendar of the previous Ming Dynasty was still in operation. This was known as the *Datong Li* (Great Unity Calendar). Although the *Datong Li* was first adopted in 1383, it was almost identical with the *Shoushi Li* (Season Granting Calendar), devised by Guo Shoujing in 1280.

Commencing with Matteo Ricci, who arrived in China in 1582, the Jesuit missionaries brought much Western astronomical knowledge to China. From the start of the Qing Dynasty in 1644, Jesuits and other Roman Catholic missionaries held the position of Astronomer Royal in China almost without interruption until 1826. During the reign of Si Zong, the last Ming emperor (A.D. 1627 – 1644), a noted official called Xu Guangqi (a Christian convert who adopted the name Paul Xu) translated many Western books into Chinese. Not long before his death in 1633, he began compiling a book on calendrical methods based on Western astronomical texts. This book, entitled *Chongzhen Lishu* (Series on Calendar Science in the Chongzhen Reign Period), was completed by Li Tianjing. It was to make an important contribution to the development of a new calendar at the start of the next dynasty. Like the other Chinese books mentioned in this article, the *Chongzhen Lishu* is still preserved.

During the Qing Dynasty, the institution responsible for the production of the calendar was the Astronomical Bureau. In the first year of the Qing Dynasty (1644), Adam Schall von Bell – the first Jesuit Astronomer Royal of China – utilised the *Chongzhen Lishu* as the basis for his *Xiyang Xinfu Lishu* (New Western Methods for Calculating the Calendar). These methods were used by von Bell in calculating a new official calendar, commencing with the year 1645. This annual calendar was called the *Shixian Shu* (Book of Constant Conformity).

The *Shixian Shu* for each year was issued on the first day of the tenth lunar month of the previous year. In 1904, near the end of the Qing Dynasty, Peter Hoang of the Nanjing Catholic Mission gave a fascinating account of the official ceremony for adopting the annual calendar. This is reproduced below from his book entitled *A Notice of the Chinese Calendar*:

«On the 1st day of the tenth month, early in the morning, the Board of Mathematics goes to offer Calendars to the Imperial court. The copies destined to the Emperor and Empresses are borne upon a sedan-like stand painted with figures of dragons, those for the Princes, the Ministers and officers of the court being carried on eight similar stands decorated with silk ornaments. They are accompanied by the officers of the Board with numerous attendants and the Imperial band of music. On arriving at the first entrance of the palace, the Calendars for the Emperor are placed upon an ornamented stand, those for

other persons being put upon two other stands on each side.... The middle stand is taken into the palace, where the officers of the Board make three genuflections, each followed by three prostrations, after which the Calendars are handed to the eunuchs who present them to the Emperor, the Empress-mother, the Empress and other persons of the seraglio (women's quarters) two copies being given to each, viz. one in Chinese and one in Manchu. The master of ceremonies then proceeds to the entrance of the palace where the two other stands were left, and where the Princes, the Ministers with the civil and military mandarins, both Manchus and Mongols all in robes of state, are in attendance. The master of ceremonies reads the Imperial decree of publication of the Calendars, namely: 'The Emperor presents you all with the *Annual Calendar* of the year, and promulgates it throughout the Empire', which proclamation is heard kneeling. Then follow three genuflections and nine prostrations, after which all receive the Calendar on their knees, the Princes two copies, one in Chinese and one in Manchu, the ministers and other officers only one, each in his own language. Lastly the Korean envoy, who must attend every year on that day, is presented kneeling with one hundred Chinese copies, to take home with him».

Hoang adds that any copies of the annual calendar which remained after distribution to provincial officials were sold to the people. He notes that: «The reprinting of the Calendar is forbidden under a penalty (except in Fujian and Guangdong provinces where it is tolerated). If therefore any copy is found without seal or with a false one, its author is sought after and punished. Falsification of the Calendar is punished with death; whoever reprints the *Annual Calendar* is liable to 100 blows and two months cangue (pillory)».

A description of the main contents of the *Shixian Shu* for any year is as follows:

(1) A statement of the length of each month in the year – months of 30 days being long and those of 29 days being short – and also whether an intercalary month was to be inserted.

(2) The date and time of each of the 24 solar terms (a division of the solar year into 24 parts, during each of which the Sun moved through 15 degrees). The first of these terms began exactly midway between the winter solstice and the spring equinox.

(3) The date and time of the following phases of the Moon: new Moon, first quarter, full Moon and last quarter.

(4) The time of sunrise and sunset and the duration of day and night for certain principal days in each month (as calculated for Beijing).

(5) Summary astrological predictions: favourable and unfavourable days.

In the *Xiyang Xinfu Lishu*, the explanation of the operation of the calendar is not very clear and in 1714 the Qing government under Emperor Sheng Zu (Kang Xi) ordered the book to be rewritten. This revision was not completed until 1722. The resulting text was entitled *Lixiang Kaocheng* (Complete Studies on Astronomy and Calendar). It contains the principles of calculation of the motions of the Sun, Moon and planets – as well as eclipses. It also contains solar, lunar, planetary and eclipse tables, together with an explanation how to use these tables. Commencing in 1726, the Astronomical Bureau calculated the yearly calendar based on the *Lixiang Kaocheng*. Although this new annual calendar was derived from revised theory, it continued to be known as the *Shixian Shu*.

It was not long before further changes were necessary. In 1730 there occurred on July 15 a solar eclipse which was fairly large at Beijing. The magni-

tude of this eclipse at Beijing as calculated according to the *Lixiang Kaocheng* tables proved to be slightly in error when compared with observation. Consequently, it became necessary to revise the solar and lunar tables of the *Lixiang Kaocheng*. By 1732, the revision was complete, but still no explanatory information had been produced on the use of these tables. Eventually, in 1742, an explanation of the astronomical principles and method of use of these tables was completed, leading to the publication of a supplementary volume entitled *Lixiang Kaocheng Houbian* (*Houbian* means «supplement»). After this work appeared, it was employed to calculate the information in the annual *Shixian Shu*.

The *Lixiang Kaocheng Houbian* was a significant improvement on its predecessor (the *Lixiang Kaocheng*) and calculations made on the basis of the revised work differed considerably from those using the *Lixiang Kaocheng* itself. For example, the vernal equinox calculated according to the *Houbian* was 3 ¼ hours (13 *ke*, each of 15 minutes) later than that calculated from the *Lixiang Kaocheng*. Also, for the autumnal equinox, the *Houbian* result was 2 ¼ hours (9 *ke*) earlier than that derived from the *Lixiang Kaocheng*. The summer and winter solstices were both half an hour (2 *ke*) late.

In addition to the yearly *Shixian Shu*, the Astronomical Bureau also occasionally compiled a work entitled the *Wannian Shu*, literally the Book for Ten Thousand Years. (This work was also known as the *Wannian Li*: the Calendar for Ten Thousand Years). The first edition of the *Wannian Shu* appeared in 1741 and covered the entire period from 1624 (the first year of the sexagenary cycle which commenced immediately prior to the Qing Dynasty) to 1835 (the projected 100th year of Emperor Qian Long). It contained the following summary information for each year in the selected 212-year period:

(1) The year of the sexagenary cycle (a continuously recurring cycle of length 60 years, used at least from the Han Dynasty: 1998 is the 15th year of the present cycle).

(2) Long months, short months and intercalary month.

(3) The day of the sexagenary cycle for the 1st, 11th and 21st day of each lunar month. (The sexagenary cycle of days, independent of solar and lunar movements, can be traced as far back as the Shang Dynasty: ca 1550 – 1050 B.C.).

(4) The date and time of each of the 24 solar terms.

Fig 1. Armillary sphere at Beijing Ancient Observatory. This instrument was built in 1744 under the guidance of the Jesuits Ignatius Kogler and Augustin von Hallerstein. Even as late as the 18th century, celestial observations in China were made without the aid of telescopes. Instruments in use included armillary spheres, quadrants and torquetums.

Photograph courtesy of ARNOLD VON ROTZ.



In this and later editions of the *Wannian Shu*, the time of each solar term was only given to the nearest double hour (*shi*) up to 1736 (the 13th year of Emperor Rong Zheng), fractions being ignored. However, from the 1st year of the following emperor, Qian Long, to his supposed 100th year (1736 to 1835: he actually reigned for 60 years), the time of the solar term was given in both *ke* (each of 15 minutes) and *fen* (each equivalent to 1 minute). In 1787 (the 52nd year of Qian Long), the first continuation of the *Wannian Shu* was completed. This now extended to the 200th year of Qian Long. In 1796, Qian Long died. Three years later (in 1799) his successor Emperor Jia Qing extended the *Wannian Shu* to the 200th year of his own reign. The practice was subsequently followed by Jia Qing's successors Dao Guang (in his 4th year: 1824), Xian Feng (in his first year: 1851); Tong Zhi (in his first year: 1862); Guang Xu (2nd year: 1876) and, ironically, the last emperor Xuan Tong (2nd year: 1910). The last edition of the *Wannian Shu* extends from 1624 to 2108, the latter year being the projected 200th year of Xuan Tong. As is well known, the brief regime of Xuan Tong was overthrown in 1911.

There are four kinds of errors in the *Wannian Shu* of the Qing Dynasty with regard to the lengths of lunar months:

Firstly, the *Wannian Shu* appears to have been calculated by a simplified method from the *Lixiang Kaocheng Houbian*, while the *Shixian Shu* for each year was calculated by the full method given in the *Houbian*. When the times of the new moons were close to midnight, the dates of these events calculated in the two separate ways might occasionally fall on adjacent days. Consequently, the lengths of two consecutive months given in the *Wannian Shu* and the *Shixian Shu* might be different. In such cases, the *Shixian Shu* would correct the errors in the *Wannian Shu*. Discrepancies of this nature have occurred many times.

Secondly, several printing errors have been noted in the *Houbian*, an extreme example being as follows. The mean longitude of the Moon at 0 hours for the meridian of Beijing on the day after the winter solstice of 1924 was misprinted with an error of 10 degrees in the *Houbian*. As a result, a serious mistake occurred in the current *Wannian Shu*: the dates of eleven new Moons from the winter solstice of 1924 to the winter solstice of 1925 were one day in error. These mistakes were discovered by the former Central Observatory, during the calendar compilation for the 14th year of the Republic of China (1925).



Fig 2. Close-up view of a richly ornamented socket of the armillary sphere shown in Fig 2. In the construction of astronomical instruments, the strict regulations of Chinese ornamentation had to be observed: for example, the dragon, the infallible symbol of the emperor.

Photograph courtesy of ARNOLD VON ROTZ.

Thirdly, even in the absence of misprints, the tables in the *Houbian* – although a significant improvement on the *Lixiang Kaocheng* – were not always sufficiently accurate for reliable calendar computation. In consequence, the results from the *Houbian* and those based on the Western new method introduced in 1914 might be in discord relative to one another. The dates of new Moons thus might occur on two separate days in the *Wannian Shu* and in the calendar of the same year computed according to the new method.

Finally, the *Houbian* used the local time of Beijing, while since 1929 calculations have been made according to the standard time of the meridian of 120 degrees east longitude. The difference amounts to 15 minutes of time. Although not a real error in the *Wannian Shu* itself, this discrepancy can affect the lengths of two adjacent months when a new Moon occurs close to midnight.

In 1912, the Republic of China was proclaimed. Dr Sun Yat-sen announced that from January 1 of that year the Gregorian calendar would be adopted for all official purposes. The new government took over the Astronomical Bureau of the Qing Dynasty and changed its name to the Central Observatory.

Commencing in 1912, the Central Observatory published annually a book of calendar tables entitled *The Calendar of the Republic of China*. The main content of this work was the Gregorian calendar for the year; however, some details were still provided for the luni-solar calendar. In the first and second years of the Republic (1912 and 1913), the luni-solar calendar was still calculated according to the *Lixiang Kaocheng Houbian*. However, from 1914 use of the *Houbian* was replaced by modern Western methods. In the preface to the new calendar it is stated that the solar calculations were based on S. Newcomb's *Tables of the Sun* (published in 1895); for the Moon, P.A. Hansen's *Tables de la Lune* (1857) were utilised.

Times of the solar terms and the new Moons deduced by the new methods were found to differ significantly from those derived from the *Lixiang Kaocheng Houbian*. As a result, month lengths deduced by reference to the *Houbian* were occasionally found to be incorrect. For example, the *Wannian Shu* published in the second year of the last Emperor Xuan Tong (1910) gave the ninth month as long and the tenth month as short in the expected 6th year of Xuan Tong (1914). However, in the *Calendar of the Republic of China* for 1914, the two month lengths were reversed.

In 1929, the Institute of Astronomy at Nanjing took over the work of the former Central Observatory at Beijing. This work included the maintenance of the calendar. For the next 20 years, until the foundation of the People's Republic of China in 1949, the official yearly calendar produced at Nanjing was known as the *Guomin Li* (Citizen's Calendar); this was essentially Gregorian. The traditional Chinese calendar was formally abolished from 1929 but the dates and times of the solar terms and the lunar phases (together with sunrise and sunset data and eclipse predictions) were still calculated. However, at the popular level the traditional Chinese calendar continued in use. It seems possible that this was based on the *Wannian Shu*, which fortunately happened to be free from errors in the month lengths during this period.

Since the foundation of the People's Republic in 1949, Purple Mountain Observatory in Nanjing has been responsible for maintaining the luni-solar calendar. Nevertheless, even since 1949 some publishers of annual calendars continued to use the *Wannian Shu*. This was a retrograde step since even in the Qing Dynasty the *Wannian Shu* was never

used for compiling the calendar. Use of the *Wannian Shu* has resulted in several erroneous predictions. The three most important instances of such error which have occurred are as follows:

Firstly, for two months of the year 1953, there were two different major calendars in China. Some publishers, basing their data on the *Wannian Shu*, gave the sixth month as short and the seventh month as long, whereas the calendar based on the calculations of Purple Mountain Observatory gave the reverse sequence. This caused considerable confusion throughout China. After this unfortunate event, the government department in charge of book publication decided to use the data of Purple Mountain Observatory and directed publishers throughout the country to use only the results of this Observatory to compile calendars. From this date onwards, the luni-solar calendar of China has been unified.

Subsequently, in the southern city of Guangzhou (Canton), calendars for the year 1978 differed over the lengths of two successive months. This arose because some calendars had been imported from nearby Hong Kong, where the *Wannian Shu* was still in use. As a result, two separate luni-solar calendars circulated in Guangzhou. The *Wannian Shu* gave the seventh month of 1978 as short and the eighth month as long. However, according to the calculations of Purple Mountain Observatory, the seventh month was long and the eighth month short. One of the more important results was that the date of the Mid-autumn Festival (the 15th day of the eighth month) differed in China and Hong Kong. This caused confusion in Guangzhou, where both calendars were available. In consequence, both the *South China Daily* and the *Guangzhou Daily* received many letters of enquiry from readers. Following this event, in 1986 Purple Mountain Observatory published in Hong Kong the *Pocket 20-Year Chinese Calendar: 1981-2000* in an effort to prevent further errors.

Finally, as recently as 1989 the *Wannian Shu* contained an error in month lengths. It gave the sixth month as short and the seventh month as long, rather than the converse. Fortunately, most of the calendars for that year which circulated in Hong Kong did not contain any error since they were based on the calculations of Purple Mountain Observatory. In particular, the Royal Observatory in Hong Kong compiled both wall and book calendars according to these calculations. However, in Taiwan many calendars were still based on the *Wannian*

Shu. Newspapers stated that the director of Taipei Astronomical Observatory confirmed that the calendar calculated by Purple Mountain Observatory was correct. As a result, many of the erroneous calendars for the year 1989 which were published in Taiwan were withdrawn by factories and shops on the island.

Outside the People's Republic, some publishers still utilise the *Wannian Shu* to compile the yearly calendar. As it happens, over the period from 1998 to 2012 the *Wannian Shu* is free from errors in month lengths. However, for the succeeding two decades there are mistakes in month lengths on five occasions: in the years 2013, 2019, 2023, 2030 and 2031. Further errors will occur in the period after 2050. Errors in the date of the solar terms also occur in numerous instances. Because of the inaccuracies in the *Wannian Shu* we suggest that its use should be discontinued.

In order to correct the mistakes in the *Wannian Shu* and provide calendar publishers with accurate data, one of the present writers (Liu) has published as chief author, a series of books on the traditional Chinese (luni-solar) calendar under the auspices of Purple Mountain Observatory. For many years, Liu was in charge of calculating the annual calendar at this Observatory. In addition to the above mentioned *Pocket 20-Year Chinese Calendar: 1981-2000*, which was published by the Commercial Press in Hong Kong (1986), four further books have appeared. These are as follows:

- (i) *The 200-Year Chinese Calendar: 1821-2020* (1959, Science Press, Beijing);
- (ii) *The 100-Year Chinese Calendar: 1901-2000* (1979, Science Press, Beijing);
- (iii) *The Pocket 10-Year Chinese Calendar* (many editions commencing in 1962, Shanghai Scientific and Technological Publishing House, Shanghai);
- (iv) *The Newly Compiled Perpetual Traditional Chinese Calendar: 1840-2050* (1959, 1978, 1984, Popular Science Publishing House, Beijing).

It is hoped that these publications will ensure an error-free future for the Chinese luni-solar calendar well into the next century.

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See you soon!

Zusammenfassung

Eine kurze, zeitgenössische Geschichte des chinesischen Kalenders.

In China, wie in fast allen Ländern der Welt, wird heutzutage für offizielle Zwecke der gregorianische Kalender verwendet. Tageszeitungen und Alamanchs jedoch geben das Datum auch nach dem traditionellen lunisolaren, chinesischen Kalender an, und besondere Festtage werden nach dem chinesischen Kalender gefeiert. Das wichtigste Fest Chinas ist das chinesische Neujahr - das Frühlingsfest, welches drei Tage dauert. In ländlichen Gegenden werden Jahrmärkte, Geburtstage und andere feierliche Anlässe üblicherweise nach diesem Kalender begangen. Auch andere asiatische Länder bedienen sich noch stets des chinesischen Kalenders.

Oft ist man daran interessiert, Daten des chinesischen Kalenders in Daten des gregorianischen umzurechnen. In der westlichen Literatur gibt es nur wenig Information dazu, und diese ist mitunter auch noch unvollständig oder nicht auf dem neuesten Stand. Diese Artikelreihe soll diese Situation verbessern.

Als lunisolare (Sonnen-Mond) Kalender ist der chinesische Kalender auf eine genaue Bestimmung der Mondphase bzw. der Sonnenstellung angewiesen. Im Laufe der Zeit hat dies mit verbesserten astronomi-

schen Methoden der Positionsbestimmung und durch Regelsänderungen zur Anpassung der Kalenderrechnung geführt.

Der traditionelle chinesische Kalender, der heute benutzt wird, stellt eine Entwicklung des Shixian Li (Kalender der ewigen Übereinstimmigkeit) der Qing Dynastie (1644 - 1911 n. Chr.) dar. Im ersten Jahr der Qing Dynastie wendete man noch den Datung Li (den grossen einheitlichen Kalender) der vorangegangenen Ming Dynastie an. Im Jahre 1644 verfasste der Jesuit A.S. VON BELL, der kaiserliche Astronom der neuen Dynastie, das Xiyang Xinfu Lishu (die neue westliche Methode der Kalenderrechnung). Als Grundlage dazu verwendete er den Chongzhen Lishu (die Kalenderwissenschaftsreihe der Chongzhen Regierungsperiode), welcher sich seinerseits auf westliche Astronomiebücher bezog. BELL berechnete den Kalender für das Jahr 1645 und nannte ihn Shixian Shu (das Buch der ewigen Übereinstimmung).

Im Jahre 1722 wurde der Xiyang Xinfu Lishu überarbeitet und unter dem Titel Lixiang Kaocheng (die vollständige Studie der Astronomie und Kalender) herausgegeben. Dieser diente ab 1726 als Grundlage für die regelmässige Veröffentlichung des Kalenders durch das astronomische Büro und wurde auch Shixian Shu genannt! Sechzehn Jahre später, im Jahre 1742, folgte der Lixiang Kaocheng Houbian (Houbian = Nachtrag),

der von nun an als Basis für die Kalenderherstellung diente.

Zusätzlich zum Shixian Shu hat das astronomische Büro in unregelmässigen Zeitabständen das Wannian Shu (das Buch der zehntausend Jahre) verfasst. Die erste Ausgabe für die Periode 1624 bis 1835 erschien 1760. Diese Kalender stimmten nicht immer miteinander überein, und es gab Druckfehler. Ausserdem wurde ab 1929 anstatt des Meridians von Beijing der Meridian 120 grad Ost verwendet.

Ab 1914 wurde der Lixiang Kaocheng Houbian durch moderne westliche Methoden ersetzt.

Im Jahre 1929 wurde das Astronomische Institut von Najing mit der Herausgabe der Kalender beauftragt, und seit 1949 wird diese Aufgabe vom Purpurberg Observatorium in Nanjing wahrgenommen.

Aber auch heute noch werden Kalender nach Wannian Shu veröffentlicht. Um die Fehler zu korrigieren, die Wannian Shu behafteten, hat einer der Verfasser dieses Artikels (Prof. LIU) einige Kalenderbücher unter der Schirmherrschaft des Purpurberg Observatoriums von Nanjing herausgebracht.

Zusammenfassung:
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Résumé

Une brève histoire contemporaine du calendrier chinois

Comme pratiquement c'est le cas dans tous les pays du monde, en Chine aussi, le calendrier grégorien est adopté en ce qui concerne les relations officielles.

Pourtant, les quotidiens et les almanachs en Chine donnent à côté de la date, selon le calendrier grégorien, la date selon le calendrier traditionnel lunisolaire chinois.

Les jours de fête, entre ceux, le plus important en Chine, le nouvel an (Xin Nian) - la fête du printemps qui dure trois jours - sont tous fixés d'après le calendrier chinois; de même dans la campagne où les fêtes foraines, anniversaires ou commémorations sont d'habitude réglées suivant ce même calendrier.

D'ailleurs, pas seulement en Chine, mais en d'autres pays asiatiques, le calendrier chinois est encore aujourd'hui assez répandu.

Fréquemment, il y a intérêt de convertir des dates du calendrier chinois dans le calendrier grégorien. Dans la littérature occidentale il y a peu d'ouvrages sur ce sujet qui sont en partie incomplets ou pas actualisés. Le but de cette série d'articles est d'y remédier à cette situation en donnant des indications correctes et selon les règles actuelles.

En s'agissant d'un calendrier lunisolaire, le calendrier chinois est fortement dépendant d'une exacte détermination de la phase lunaire et de la position du soleil.

Ceci a conduit à apporter des adaptations et corrections sur le calcul du calendrier au cours du temps, non seulement dû à l'introduction des méthodes astronomiques améliorées, mais aussi dû au changement des règles.

Le calendrier traditionnel chinois qui est employé aujourd'hui, représente un développement du Shixian Li (calendrier à concordance perpétuelle) de la dynastie Qing (1644 - 1911 A.D.)

Dans la première année de la dynastie Qing, le calendrier encore en usage était le Datung Li (calendrier de la grande unification) qui provenait de la dynastie antérieure des Ming. En 1644, le jésuite A.S. von Bell, astronome impérial de la nouvelle dynastie, a rédigé le Xiyang Xinfu Lishu (nouvelle méthode occidentale de calcul du calendrier). Ce travail a été réalisé en prenant comme source le Chongzhen Lishu (série sur les sciences du calendrier du règne Chongzhen), qui était de sa part préparé sur des méthodes astronomiques occidentales.

Le calendrier pour l'année 1645 a été calculé par von Bell et nommé Shixian Shu (le livre de la concordance perpétuelle).

Dans l'année 1722, le Xiyang Xinfu Lishu a été révisé et publié sous le titre Lixiang Kaocheng (études complètes de l'astronomie et calendrier).

(Suite du résumé en page 38)

(Suite du résumé de la page 37)

Cette dernière œuvre a servi de base à la publication régulière du calendrier par le Bureau d'Astronomie à partir de 1726. Malgré que ce calendrier était calculé sur la base des théories révisées, il est resté connu comme le *Shixian Shu*!

Ensuite, en 1742, il a été publié un supplément, le *Lixiang Kaocheng Houbian* (*Houbian* = supplément) qui, dorénavant, a été utilisé pour l'établissement du calendrier. En plus du *Shixian Shu*, le Bureau d'Astronomie publiait à des longs intervalles le *Wannian Shu* (le livre des dix mille ans). La première édition, couvrant la période de 1624 à 1835, a paru en 1760.

Les indications dans ces deux calendriers n'étaient pas toujours concordantes; en plus, il y avait des fautes d'impression. Par-dessus tout le fait qu'à partir de 1929 il a été décidé de prendre comme méridien de référence le méridien de longitude 120° est, au lieu du méridien de *Beijing*.

A partir de 1914 le *Houbian* a été substitué par des méthodes occidentales modernes de calcul.

Depuis 1929 l'Institut Astronomique de Nanjing a été chargé de publier le calendrier et depuis 1949 cette tâche est assurée par l'Ob-

servatoire de la Montagne Pourpre, Nanjing. Aujourd'hui encore sont publiés des calendriers sur la base du *Wannian Shu*, ce qui perturbe les utilisateurs à cause des datations incorrectes.

Afin de remédier cet état de choses, l'un des auteurs de l'article (Prof. Liu) a publié sous le patronat de l'Observatoire de la Montagne Pourpre, Nanjing, quelques oeuvres sur le calendrier, qui sont exemptes des erreurs du *Wannian Shu*.

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