REPORT

OF THE

CALENDAR REFORM COMMITTEE

GOVERNMENT OF INDIA

Council of Scientific and Industrial Research,
Old Mill Road,
New Delhi.
1955

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सत्यमेव जयते

M E S S A G E.

I am glad that the Calendar Reform Committee has started its labours. The Government of India has entrusted to it the work of examining the different calendars followed in this country and to submit proposals to the Government for an accurate and uniform calendar based on a scientific study for the whole of India. I am told that we have at present thirty different calendars, differing from each other in various ways, including the methods of time reckoning. These calendars are the natural result of our past political and cultural history and partly represent past political divisions in the country. Now that we have attained independence, it is obviously desirable that there should be a certain uniformity in the calendar for our civic, social and other purposes and that this should be based on a scientific approach to this problem.

It is true that for governmental and many other public purposes we follow the Gregorian calendar, which is used in the greater part of the world. The mere fact that it is largely used, makes it important. It has many virtues, but even this has certain defects which make it unsatisfactory for universal use.

It is always difficult to change a calendar to which people are used, because it affects social practices. But the attempt has to be made even though it may not be as complete as desired. In any event, the present confusion in our own calendars in India ought to be removed.

I hope that our Scientists will give a lead in this matter.

Jawaharlal Nehru

New Delhi,
February 18, 1953.

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Shri N. C. Lahiri acted as the Secretary of the Committee.

TRANSLITERATION

The scheme of transliteration of Sanskrit alphabets into Roman script adopted in this publication is the same as generally followed. The corresponding scripts are given below :—

VOWELS

अ	...	a
आ	...	ā
इ	...	i
ई	...	ī
उ	...	u
ऊ	...	ū
ऋ	...	ṛ
ऌ	...	ḷ
ए	...	e
ऐ	...	ai
ओ	...	o
औ	...	au

CONSONANTS

क्	...	k
ख्	...	kh
ग्	...	g
घ्	...	gh
ङ्	...	ṅ
च्	...	c
छ्	...	ch
ज्	...	j
झ्	...	jh
ञ्	...	ñ
ट्	...	ṭ
ठ्	...	ṭh
ड्	...	ḍ
ढ्	...	ḍh
ण्	...	ṇ
त्	...	t
थ्	...	th
द्	...	d
ध्	...	dh
न्	...	n
प्	...	p
फ्	...	ph
ब्	...	b
भ्	...	bh
म्	...	m
य्	...	y
र्	...	r
ल्	...	l
व्	...	v
श्	...	ś
ष्	...	ṣ
स्	...	s
ह्	...	h
ं	...	ṁ
ः	...	ḥ
ऽ	...	'

N. B. Diacritical marks have not generally been used in names of persons belonging to recent times as well as in well-known geographical names.

PREFACE

The Calendar Reform Committee was appointed in November, 1952, by the Council of Scientific and Industrial Research (of the Government of India) with the following terms of reference :

"To examine all the existing calendars which are being followed in the country at present and after a scientific study of the subject, submit proposals for an accurate and uniform calendar for the whole of India".

In accordance with its terms of reference, the Committee (for personnel, see p. 4) has scientifically examined all the calendars prevalent in India (*vide* Part C, Chap. V), *viz.*,—

Gregorian Calendar...which is used for civil and administrative purposes (*vide* p. 170) all over the world.

Islamic Calendar.....used for fixing up the dates of Islamic festivals (*vide* p. 179).

Indian Calendars or Pañcāṅgas.....used for fixing up dates and moments of Hindu, Bauddha and Jaina festivals in different States of India, and in many cases for civil purposes also. They are about 30 in number. (*vide* Chap. V, p. 258).

It has been pointed out (p. 171) that the Gregorian calendar, which is used all over the world for civil and administrative purposes, is a very unscientific and inconvenient one. The World Calendar (p. 173), proposed by the World Calendar Association of New York, has been examined and found suitable for modern life. The proposal for its adoption by all the countries of the world for civil and administrative purposes was sponsored by the Indian Government before the U. N. O. and debated before the ECOSOC (Economic and Social Council) at Geneva in June, 1954 (p. 173) and its recommendations have been transmitted to the Governments of the World for their opinion. It is hoped that the World Calendar will be ultimately adopted. It will lead to a great simplification of modern life.

The introduction of the World Calendar in place of the Gregorian is a matter for the whole world, which has now to look for decision by the U. N. O.

The Islamic (Hejira) calendar has been discussed on p. 179, along with some proposals for reform suggested by Dr. Hashim Amir Ali of the Osmania University, and Janab Mohammed Ajmal Khan of the Ministry of Education. It is for the Islamic world to give its verdict on these suggestions. If these suggestions are accepted, the Islamic calendar would fall in line with other luni-solar calendars.

As these two important systems of calendars had to be left out, the Committee's labours were confined to an examination of the different systems of calendars used by Hindus, Bauddhas and Jainas in the different states of India, chiefly for the fixing up of the dates and moments of their religious festivals, and for certain civil purposes as well.

For the purpose of examining all the existing calendars of India, as per terms of reference, an appeal was issued to the Pañcāṅga (Almanac) makers for furnishing the Committee with three copies of their Pañcāṅgas. In reply to our request 60 Pañcāṅgas (Almanacs) were received from different parts of the country and were examined (p. 21). To facilitate examination of the calendars, a questionnaire was issued to which 51 replies were received (pp. 23-31). In addition to the above, 48 persons offered their suggestions (pp. 32-38) for reform of the Indian calendar. These views were very divergent in character. Some quoted ancient scriptures to prove that the earth is flat, with a golden mountain in the centre round which move the sun and the planets, others tried to refute the precession of equinoxes. All opinions were taken into consideration in arriving at the decisions of the Committee.

Principles followed in fixing up the Calendar :—The calendar has got two distinct uses—civil and religious. The Indian calendars are used not only for fixing up the dates and moments of religious observances but also for the purpose of dating of documents and for certain civil purposes not only by the rural, but also by a large section of the urban population. There is great divergence in practice in different parts of the country in this respect. Therefore a unified solar calendar has been proposed for all-India use for civil purposes. This has been based on the correct length of the year (*viz.* the tropical year) and the popular month-names, *viz.*, Caitra, Vaiśākha, etc. have been retained (see p. 6).

Calendars are based partly on SCIENCE which nobody is permitted to violate and partly on CONVENTIONS which are man-made and vary from

place to place. The Indian calendars put up by almanac-makers commit the violation of the following principles of science :—

They take the length of the year to be 365.258756 days (p. 240, Part C of Report) as given by the *Sūrya-Siddhānta* about 500 A. D. ; while the correct length of the tropical year, which alone can be used according to the *Sūrya-Siddhānta* and modern astronomy for calendarical use, is 365.242196 days. The difference of .01656 days is partly due to errors of observation, not infrequent in those days, and to their failure to recognize the precession of equinoxes. As the Sūrya-Siddhānta value of the year-length is still used in almanac-making, the year-beginning is advancing by .01656 days per year, so that in the course of nearly 1400 years, the year-beginning has advanced by 23.2 days, with the result that the Indian solar year, instead of starting on the day following the vernal equinox, i.e., on March 22, as prescribed in the Sūrya-Siddhānta (see Chap. V, p. 239), starts on April 13 or 14. The situation is the same as happened in Europe due to the acceptance of 365.25 days as the length of the year at the time of Julius Caesar ; the Christmas originally linked to the winter solstice preceded it by 10 days by 1582 A.D., when the error was rectified by the promulgation of a bull by Pope Gregory XIII. By this, Friday, October 5 was proclaimed as Friday, October 15, and new leap-year rules were introduced.

Unlike Europe, where the Pope in the medieval times possessed an authority which every one in Catholic Europe respected, India had a multiplicity of eras and year-beginnings due to her history during the years 500-1200 A. D. But for calendaric calculations, our astronomers all over India have been using only the Śaka era since Āryabhaṭa (500 A.D.) certainly and probably from much earlier times, and in local almanacs other eras are simply imposed on it. The Calendar Committee has therefore recommended :—

That for all official purposes, the Central as well as State Governments should use the Śaka era along with the civil calendar proposed by the Committee (p.6). It is suggested that the change-over may take place from the Śaka year 1878, Caitra 1 (1956, March 21). If this is accepted, the last month of the year, *viz.*, 1877 Śaka, the solar Phālguna, which has a normal length of 30 days, will have an extra number of 6 or 7 days.

The pre-eminence of the Śaka era is due, as historical evidences cited on pp. 228-238 and 255-257 show, that it was the earliest era introduced in India, by Śaka ruling powers, and have been used exclusively by the Śākadvīpi Brahmins (forming the astrologer caste) for calendar-making on the basis of Siddhāntic (scientific) astronomy evolved by Indian astronomers on the basis of old Indian calendaric conceptions, which were put on scientific basis by blending with them astronomical conceptions prevalent in the West, from the third century B.C.

The era is also used exclusively for horoscope making, a practice introduced into India since the first century A.D. by the Śākadvīpi Brāhmaṇas.

The Calendar Committee has devised a solar calendar with fixed lengths of months for all-India use, in which it has been proposed to give up the calculations of the Sūrya-Siddhānta in which the solar months vary from 29 to 32 days.

Religious Calendar—The Committee's task resolved itself into a critical examination of the different Indian local calendars, about 30 in number, which use different methods of calculation. This produces great confusion.

As already stated the Sūrya-Siddhānta year being longer than the tropical year by about 24 mins., the Hindu calendar months have gone out of the seasons to which they conformed when the Siddhāntic rules were framed ; as a result, the religious festivals are being observed not in the seasons for which they were intended but in wrong seasons. The Committee felt that the error should be corrected once for all and the months brought back to their original seasons. But with a view to avoiding any violent break in the present day practices, the desired shifting has not been effected, but any further increase of the error has been stopped by adopting the tropical year for our religious calendar also (see p. 7).

Before the rise of Siddhānta Jyotiṣa (400 A.D.), India used only the lunar calendar calculated according to the Vedāṅga Jyotiṣa rules and most religious festivals (e.g. the Janmāṣṭamī, the birthday of Śrī Kṛṣṇa) used to be fixed up by the lunar calendar which used only tithi and nakṣatra. The Calendar Committee could not find out any way of breaking off with the lunar affiliation short of a religious revolution and has, therefore, decided to keep them. For this purpose, the lunar year is to be pegged on to the solar year by a number of conventions. The Committee has adhered to the ancient conventions as far as possible. But the erroneous calculations of tithis and nakṣatras have been replaced by modern calculations given in the nautical almanacs and modern ephemerides, and the religious holidays have been fixed for a central station of India (*vide* page 40).

The present practice is to calculate the tithi for each locality and the result is that the same tithi may not occur on the same day at all places. The Calendar Committee has found that the continuance

of different lunar calendars for different places is a relic of medieval practice when communication was difficult, the printing press did not exist and astrologers of each locality used to calculate the calendar for that locality based on Siddhāntic rules and used to proclaim it on the first day of the year to their clients. In these days of improved communication, free press, and radio, there is not the slightest justification for continuance of this practice and the Committee has fixed up the holidays for the central station (82° 30′ E, 23° 11′ N, see Report p. 40); and recommended that these holidays may be used for the whole of India. The dates of festivals of the Hindus, Jainas and Bauddhas have been determined on the above basis. This will put an end to the calendar confusion.

The confusion is symbolic of India's history. While all Christendom comprising people of Europe, Asia and America, follows the Gregorian calendar, and the whole of the Islamic world follows the Hejira calendar for civil and religious purposes, India uses 30 different systems for fixing up the same holidays in different parts of the country and frequently, two rival schools of pañcāṅga-makers in the same city fix up different dates for the same festival. This is a state of affairs which Independent India cannot tolerate. A revised national calendar, as proposed by us, should usher a new element of unity in India.

The Committee has therefore gone deeply into the history of calendar making in all countries from the earliest times particularly into the history of calendar-making in India (*vide* Chap. V) and has arrived at their conclusions. Its recommendations are entirely in agreement with the precepts laid down by the Siddhāntic astronomers, as given in the Sūrya-Siddhānta and other standard treatises (see p. 238 *et seq.*).

The Committee has also compiled a list of all religious festivals observed in diffirent parts of India and listed them under the headings (i) Lunar, and (ii) Solar, with their criteria for fixing the dates of their observances (pp. 102-106).

Where does the Government come in : Though India is a secular state, the Central Government and the State Governments have to declare a number of holidays in advance, a list of which will be found on pages 117-154 for the Central Government as well as for the States. These holidays are of four different kinds, viz. :—

(i) Holidays given according to the Gregorian calendar, e.g., Mahatma Gandhi's birthday, which falls on Oct. 2. These present no problem to any government.

(ii) But there are other holidays, which are given according to the position of the Sun (*vide* pp. 117-118).

(iii) Others which are given according to the luni-solar calendar (pp. 119-124).

(iv) Holidays for Moslems and Christians (pp. 125 and 126).

It is a task for the Central as well as State Governments to calculate in advance dates for the holidays it gives. This is done on the advice of Pañcāṅga-makers attached to each Government. In addition, numerous indigenous pañcāṅgas are prepared on the Siddhāntic system of calculations, the elements of which are now found to be completely erroneous. There is a wide movement in the country first sponsored by the great savant, patriot and political leader, the late Lokamanya B. G. Tilak, for making the pañcāṅga calculations on the basis of the correct and up-to date astronomical elements. As a result, there are almost in every State different schools of pañcāṅga calculations, differing in the durations of tithis, nakṣatras, etc., and consequently in the dates of religious festivals. The problem before the Government is : which one of the divergent systems is to be adopted. The Committee has suggested a system of calculations for the religious calendar also, based on most up-to-date elements of the motion of the sun and the moon. Calendars for five years from 1954-55 to 1958-59 have been prepared on this basis showing therein *inter alia* the dates of important festivals of different States (*vide* pp. 41-100). The lists of holidays for the Government of India and of each separate State for the five years have also been prepared from this calendar for the use of the Governments. The Committee hopes that the Government of India as well as the State Governments would adopt these lists in declaring their holidays in future. The Ephemerides Committee which has been formed by the Government of India, consisting of astronomers versed in the principles of calendar-making would act as advisers to the Central as well as State Governments. It may be assisted by an advisory committee to help it in its deliberations.

The responsibility of preparation of the five-yearly calendar and the list of holidays on the basis of recommendations adopted by the Committee has been shared by Sri N. C. Lahiri and Sri R. V. Vaidya, aided by some assistants and several pandits of note, amongst whom the following may be mentioned : Sri A. K. Lahiri, Sri N. R. Choudhury, Pandit Narendranath Jyotiratna, and Joytish Siddhanta Kesari Venkata Subba Sastry of Madras.

We have received great help from C. G. Rajan, B.A., Sowcarpet, Madras. He has kindly furnished

us with valuable suggestions regarding 'Rules for fixing the dates of festivals for South India'.

We are indebted to the Astronomer Royal of Great Britain, Sir Harold Spencer Jones, and to Mr. Sadler, head of the Ephemerides divison of the Royal Observatory of U. K. for having very kindly supplied us with certain advance data relating to the sun and the moon which have facilitated our calculations. We have to thank the great oriental scholar, Otto Neugebauer for having helped us in clearing many obscure points in ancient calendaric astronomy. We wish to express our thanks to Prof. P. C. Sengupta for helping us in clearing many points of ancient and medieval Indian astronomy.

We have reproduced figures from certain books and our acknowledgement is due to the publishers. It was however not possible to obtain previous permission from them, but the sources have been mentioned at the relevant places.

It is a great pleasure and privilege to express our gratitude to our colleagues of the Calendar Committee for their active co-operation in the deliberations of the Committee, and ungrudging help whenever it was sought for.

Calcutta,
The 10th Nov., 1955.

M. N. Saha
Chairman

N. C. Lahiri
Secretary

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