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Seminar on Panchang\*  
(19-20 Nov. 1968)

Panchang (Indian almanac) is an integral part of Indian life. It is specially so for the Hindus because most of them regulate their lives according to planetary positions detailed in Panchang. All the religious festivals are observed according to the dates given in Panchang and socio-religious functions like marriage, upanayana (thread ceremony) starting of a new business or work and many other activities are performed on the auspicious dates indicated in the Panchang for such purposes. It also contains the dates of festivals of other communities Jains, Sikhs, Muslims, Christians etc. Panchang is thus necessary even in the civil life of our countrymen, because our indigenous civil calendars, which are not based on simple rules like the calendars of the western countries, are given in the Panchang only.

2. Indian calendars are of two kinds—one is solar based on the transits of the sun into different Rasis (signs of the zodiac) and the other is lunar or luni-solar based on the new moon days related to the above solar calendar. These calendars are variable and are determined by complicated rules involving motions of the sun and the moon. Panchang gives the dates of different calendars derived by these rules for use by the general public in their daily lives and is thus a handbook and guide for all Indians, irrespective of caste, creed and territorial affiliations.

3. Panchang, as its name implies, includes Vara (week day), Tithi, Nakshatra (star), Yoga and Karana (half the tithi), which are except the Vara, determined from the positions of the sun and the moon. It contains other elements also including longitudes of planets and their transit times. Panchang is therefore basically applied astronomy adopted for daily use and as such it may be considered as a branch of science.

4. The different indigenous calendars and Panchangs are still being prepared on the basis of the knowledge of astronomy that developed in our country 1500 years ago, which, as can naturally be expected needs to be brought upto date. At that time, famous astronomical treatises under the name of *Siddhantas* like the Surya-Siddhanta, Brahmasphuta Siddhanta, Arya Siddhanta etc were written by our astronomers. The determinations of the motions of the Sun, Moon and planets by our astronomers like Aryabhata (499 A.D.), Varahamihira (c 550 A.D.) and Brahmagupta (628 A.D.) were reasonably accurate, but due to the accumulation of residual discrepancies in their annual motions, the positions of the heavenly bodies derived from these *Siddhantas* are now found to show considerable differences from their actual positions. Attempts were, however, made in the past to introduce partial corrections to the mean positions by applying a set of corrections technically known as '*Bija*' corrections in order to bring about agreement between the calculated results and the actually observed positions of the planets. The last such attempt was made about 400 years ago and most of the old school Panchangs of present day are calculated on the basis of ancient siddhantic system of astronomy taking into account only the above *Bija* corrections to the mean positions which are also inadequate for the purpose.

5. Our astronomers of the Siddhantic age adopted a value of 131' for the greatest equation of centre of the Sun as against the modern value of 115'. The elliptic theory of planetary motion was not known to them, their astronomy was based on the epicyclic theory. They applied only one correction to the moon, the equation of centre, with a reduced value of the coefficient, and were not aware of other corrections. As a result of these deficiencies, the positions of the heavenly bodies given by the

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old school Panchangs, now show discrepancies amounting to as much as 3 degrees at times. As a result, their error in the times of tithis, nakshatras etc sometimes rises up to even six hours and in case of transits of planets to months. Our astronomers of later age like Munjala (932 A.D.) Sripati (1039 A.D.) and Bhaskara (1150 A.D.) discovered the other two principal corrections to the moon, *viz.*, Evection (amounting to 78') and variation (39') but the Panchang Kartas of our country, except perhaps in one State of eastern India (Orissa), do not incorporate these corrections in their calculations. In order to avoid public criticism, it is seen that the old school Panchangs adopt modern calculations only for the timings of eclipses, leaving aside the related luni-solar elements and the timings of new moon and full moon with their incorrect values.

6. One glaring defect in respect of the position of the Sun used by the Indian astronomers for framing the civil calendar is that they ignored the precession of the equinoxes. In a Panchang, the principal component next to tithi is the nakshatra, which is associated with fixed stars. In order to retain a permanent relationship of the calendar with nakshatras, they evolved the sidereal or the so-called *nirayana* system of astronomy and they applied this system in calendar making also. As a result, the year of our calendar which used to begin from the vernal equinox day (21 March) at the time of Aryabhata now begins 23 days later on 13 April. The gradual shifting of our year and months over the scale of seasons, which are related to the equinox and solstice days, has made our indigenous calendars unsuitable for use for agricultural, meteorological or any scientific and *vis-a-vis* religious purposes. In many States the lunar calendar is used which is also similarly defective, and in addition they are very inconvenient for use for various reasons. Our astronomical system for the calculation of our Panchangs as also the civil calendar is, therefore, in need of immediate rectification.

7. At present there is, as mentioned above, a great variety of indigenous civil calendars in different States of India which are used by the local people for their daily work. Although the Gregorian calendar continues to be used for all official purposes throughout India, Govt. have also ordered on the recommendation of the Calendar Reform Committee that the Indian Saka era calendar should be mentioned along with the

Gregorian Calendar in all official correspondence. As regards the religious calendar according to which the dates of festivals are determined, it is found that in many such calendars or Panchangs as they are called, tithis etc do not correspond to those calculated from the actual positions of the Sun and the Moon in the heavens and these values also vary from Panchang to Panchang. This has resulted in large variations in the dates of religious festivals. It is therefore essential that we should have a single Indian calendar based on scientific principles conforming to modern astronomical observations and practices which should be used uniformly all over the country. With a view to securing these objectives, a Calendar Reform Committee was appointed by the Government of India in 1952 with the late Dr. M. N. Saha as its Chairman. On the basis of the recommendations of this Committee the National Calendar with the Saka Era was introduced and Rashtriya Panchangs published by India Meteorological Department in 12 different languages for the last 12 years based on modern astronomical principles.

8. Although the departmental publication of Panchang on correct scientific principles has helped in the publication of a large number of correct local Panchangs, there is still a considerable number of Panchangs which are being prepared on the old system. During the last few years many conferences on the rectification of Panchangs have been held in different parts of the country organised by followers of either the old school or modern school of calculations. No attempt had however been made to bring together under one roof Panchang Kartas and Dharmashastries from all parts of the country, and to explain to them the need for calendar reform and rectification of Panchangs.

9. A 'Panchang Seminar' was therefore held at New Delhi on 19-20 November 1968 under the joint auspices of India Meteorological Department, Akhil Bhartiya Jyotish Parishad and Sanskrit Swadhyaya Tatha Jyotish Vigyan Mandir, New Delhi and was inaugurated by Dr. Karan Singh, Minister for Tourism and Civil Aviation. A large number of Panchang Kartas, Dharma Shastries and astronomers from all over the country including delegates from different institutions/organisations as well as representatives from various States attended the above Seminar. Seven resolutions were adopted. It is proposed to publish the proceedings of the Seminar separately.