

## NEWS

### DECIMALISATION OF TIME

Present civilisation is stuck with the continuation of the Solar Day and the Gregorian Calendar, via the SECOND (s), and the length unit-METRE (m), now related to the velocity of light but it lacks its delinking from the Nautical Mile. The decision has been included in *Le Systeme, Internationale d' Unites* (SI). Why could science not arrive at a definition for Nautical Kilometre, even after over two centuries of adoption of the 'metre' and hence the metric system (commonly mis-concieved as the decimal count of multiples/submultiples)?

What have been the observations during 400th anniversary of Gregorian Calender held at Vatican during proceedings of World Conference on the Calendar? The Gregorian calendar suffers from several anomalies:

- Week days rotate as the year number changes;
- The two half years and the four quarters have unequal durations;
- Number of days during any month may vary between 28 and 31 days;
- There has been a growing need to standardise Information Interchange Representation of the Date and Time of the Day-International standard ISO 8601: 1988 refers;
- What then is the choice: *Metric Calendar, Sidereal Calendar or a review of the Solar Calendar (s)* afresh, with new inputs (decimal or otherwise)?

Why did the French initiative to decimalise Time/Calendar fail within 13 years of its introduction? And, what led to politico-religious dogma that Prieur of Cote d' Or did not press for adoption of 'decimale time' while favouring the metric system by the decree of 1795 April 7? What has become of those 37 contestent entries (watches/clocks) of 1794 February to arrive at a '*surest, easiest and cheapest*' solution to know DUAL TIME during transition?

The Papal Bull issued by Pope Gregory XIII redesignating 1582 October, 05 (Friday) as 1582 October 15 (Friday) corrected only 10 calendar dates, while the discrepancy using modern value for the year's duration, which is 365.24219878125 days, work to 12.4746362812 days, thus needs a further correction. *Joseph Justus Scaliger* had taken 36525 days per century in calculating Julian Day count. Using the modern values, the currently used modified Julian Day (MJD) count needs to hold the

hands of Julian Day Clock at MJD 51128-01 (November 12) for the next 38 days MJD 51128-38 (December 19) in the year 1998, when the new Decimal World Calendar is proposed to be introduced! Modified Julian Day (MJD) Count on 1994 January 01 was MJD 49352 independent of any calendar.

### NEW CALENDAR PLAN

The new format of the World Decimal Calendar retains the existing scheme of things, with changed 'magnitudes' for TIME interval and a corresponding change in the *Length unit by about 111.2%*. The 24-hour clock and the 90° quadrant, as also the 7-day 'sabbath cycle or the week' are retained.

In the 'new' format: 100 Decimal Seconds ( $s_d$ ) equal 1 Decimal minute; 100 Decimal minutes ( $m_d$ ) equal 1 hour (same as the present hour of 60 minutes). Thus, decimal second is 36% of the SI-Second. The day continue to be of 24 hours and the week of 7 days-SUNDAY (01) to Saturday (07). The year number changes after 52 weeks (W) formatted in two half years-W00 to W25 and W26 to W51. The remaining period of 1.24219878125 day is 'leaped' over as an extra 53rd week (to be called LEAP WEEK), at intervals of every SIX (6) years.

Changed magnitude for 'Nautical Kilometre' in order to bridge time-angle-length axis. The angle 'radian' can be fixed at 57°17' 44".88 (57°.2958) and for all practical purposes  $\pi = 100000/31831$ , which when run through a computer repeats all by itself after 5244th decimal.

Like changing the time: from 1h x 60m x 60s to 1h x 100 $m_d$  x 100 $s_d$ ; the degree (in angle) also needs to be changed from 1° x 60' x 60" to 1° x 100' x 100" so as to co-relate 'time zones' around the Earth, East or West of date line/Greenwich time. Now, considering the known radius of Earth i.e. 6371 Km. the co-related definition for a '*Nautical Kilometre*' is the surface distance on Earth made by 1' (1/100th of 1°) of angular arc at the centre-instead of using the Nautical Mile. Naturally, the modified length unit: METRE NEW(m) is the distance traversed by light in vacuum, during the time interval 1/97059575.22th of Decimal Second,  $s_d$ , correspondig to the distance 1.11194886884 metre-which is also te distance conversion factor ( $d_s$ ). New values for derived units/quantities in SI can easily be re-worked by using the 'new' magnitudes for time interval and the modified length unit or their reciprocals.

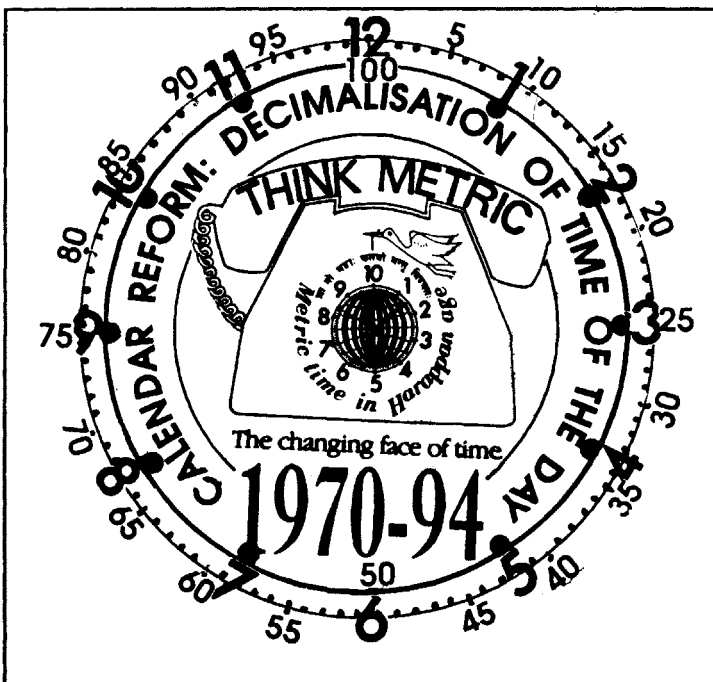
In determination of 'local time' at any point on Earth, each degree longitudinal transit of Earth across Sun is six & two-third (6 2/3) decimal minute and on the face of clock a 30° motion of the minute hand represent eight & one-third (8 1/3) decimal minute. Duration of time interval, Decimal Second ( $s_d$ ) is 1/87658127.707th of the 'tropical year' or 36% of SI-second.

Disastrous failure of the French Republican Calendar had some pseudo-scientific reasons' best known to Prieur of Cote d'Or who did not press for adoption of *decimale*

*time*. Some arguments that I can see could be:

- non-merger of length unit 'metre' with the time standard 'second';
- angular measure 'gradian or grad' had no relation with the 24 hour clock of 1h x 60m x 60s i.e. the 15° hourly quadrangle;
- Supremacy of Church and hence Gregorian calendar after Napoleon's defeat automatically rejected the French Decimal Calendar; coronation and terns laid for his
- Sexagesimal sub-divisions eg. the number 60 could rationally be divided by as many as 10 numbers—2, 3, 4, 5, 6, 10, 12, 15, 20 and 30.
- Confused 'status' of decimal multiples and sub-multiples treated as part of the 'metric system' although not related to length unit, metre.

Man on the street need no fear that he has to throw away his present wrist watch/clock or time piece in order to read DUAL TIME during the transitory phase of change-over to decimal time. He only need to have additional graduations that show 25, 50, 75 and 100 minute/second divisions against the present 15, 30, 45 and 60 minute/seconds; till new movements (in future production of time devices) that represent the time interval-Decimal Second, is brought into pipeline. (Fig)



Without any additional marking on the dial-face, one has only to imagine a time span of *eight and one-third* decimal minute, between 30° travel of the minute hand (as against presently 5 minutes); and to know local time *six and two-third* decimal minute per degree longitudinal shift East or West of date line/greenwich, as the Earth spins in its axis (as against the present 4 minute per degree longitude transit).

Astronomically also, there is no appreciable dis-array since duration of 24-hour day is maintained (except further decimalisation of the hour/degree); and all luni-solar inter-calations hold good. However, the leap day accounting (i.e. to have February 29th every 4th year) has been changed to all years having 52-weeks and every sixth year to have an added 53rd week, as *leap week of the year*.

An 896-year span shall have 327257.01010776 days, to account 159 'leap weeks'. Other than all years divisible by six, only 10 inter-calary leap weeks need adjustment at a frequency of every 90-years the first three (3) years later (i.e. during 93rd year) and the last three (3) years earlier (i.e. during 87th year), if the 896th year itself happen to be divisible by six (6).

An accumulated 'under accounted' error of only *ONE DAY* shall creep into after a long period of 88645 years:

The 'new calendar plan' (as proposed by Shri Brij Bhushan Vij, 335, Vikas Kunj, Vikas Puri, New Delhi-110018) is recommended to be brought into force on the day after 1998 Decembar 19 (Saturday) and called 1998 December 22 (Sunday), after correcting the Gregorian discrepancy left by Pope Gregory XIII; and the leap week falling next (i.e. first) shall be in the year 2004 A.D.

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#### SECOND SYMPOSIUM ON CULTURAL HERITAGE, MINING AND METALLURGY

A Seminar on 'Art and Culture in Mining and Geosciences' will take place between 18-20 September, 1995 at the University Library of Loeben. For inquiries contact Dr. Lieselotte Jontes, Universitätsbibliothek der Montanuniversität, Franz-Josef-Str. 18, A-8700 Loeben. Tel.: 43 (03842) 402/275. Fax: 43(03842) 46 3 80.