

Bulletin 02.1 English summaries

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Contents of the January 2002 Bulletin, nr. 78*01 September 2001 meeting**Secretariat*

Thirteen members plus one guest attended this meeting. Th. Taudin Chabot is the new treasurer; the meeting thanked his predecessor Sassenburg. Members were called upon to join the internet committee.

Hans de Rijk thought about the sundial formed by an aperture in the curtains and the opposite wall. Vertical lines on the wall would work only a few days, could we do better? Hans then produced a cigar box which he is also going to turn into a sundial. Fer de Vries is going to do the calculations. Next is a rather special wristwatch, described elsewhere in this bulletin. Hans also shows his digital sundial (see B01.3 for a picture).

Fer de Vries talked about the Foster-Point dial (see elsewhere in this Bulletin). Herman van der Wyck brought pictures of a model of a Japanese sundial (also in this issue). He also mentions some typos in his book, and circulates photographs that Peter Louwman made of the Twente excursion. Fer showed more sundial photographs, a.o. of a dial by Sasbrink. Many ideas and thoughts were discussed.

Two books came in for perusal: *Hestor Higton: Sundials, An illustrated history of portable dials*; and Yves Opizzo, *Die Schatten der Zeiten* (shadows of time).

*04 In Memoriam Jan Kragten**J.A.F. de Rijk and Secr.*

Jan Kragten died 7 November 2001 at the age of 83. He was an active member and an amiable person.

After attending a lecture by Marinus Hagen, Jan at once became a member of the Society. The subject never left him since. He turned into a researcher and publicist and wrote many interesting and well-founded papers.

The numerous models he built showed his technical abilities. He made them for the instruction of others as well.

In Jan we lose an esteemed member.

*05 Karen's Hand Sundial**F.J. de Vries*

This article is a translation of "A 'Digital' Universal Ring Dial – More Time At Your Fingertips" by Karen Deal Robinson, which also appeared in *The Compendium* for March 2002. An addendum describes the traditional universal ring dial, which Karen would emulate.

*09 Unity in time**M. Hugenholtz*

The classical Greek tragedies satisfied unity in time, place and action. Gnomonists however have not yet agreed on unity of time. We see Local Apparent Time, Solar Time, Apparent Solar Time, Wahre Ortszeit, etcetera.

Some dials use longitude correction, some the equation of time, some both, others neither. To say nothing of daylight saving time. If gnomonists so differ, what can the layperson make of it all?

The author favours dials with "solar time" and/or "clock time" readout, with a clear statement which is used. An EOT table, or a note pointing out a maximum difference of 16 minutes between dial and civil time, should be part of the installation.

*10 Experiencing time.. on a wrist watch**J.A.F. de Rijk*

Time; everyone knows what it is (physicists have defined it); except philosophers do not. The rotation of the earth and its revolution about the sun establish time. We, gnomonists, look at the shadow of a little ball on a field of lines telling date and time, and that is all we know, too. But looking makes us a little different. We live time, which is a pleasant fact amidst all those graphs and equations.

There has come a division between natural and artificial time. We look on a mechanical instrument and note: 'supper', no matter if it is bright or pitch dark out. Artificial time has many benefits, but we do not live it.

The remainder of this article describes an interesting wristwatch showing both 'natural' and 'artificial' time. A single hand moves a little sun around twenty-four hours. The background is coloured light and dark blue, indicating day and night. The digital display caters for every other presentation that might be called for.

*12 A versatile Japanese sundial**Editor*

A Japanese visitor of the Schoonhoven Museum of Clocks was so impressed that he promised to send a sundial when he returned home. The museum received a 1:5 model of a sundial in Nagoya-ken, accompanied by two display cards with photographs, showing different time readings on the dial.

The cylindrical dial is furnished with seven date lines, marked with zodiacal signs; EOT curves for every ten minutes; solar time lines; sidereal time lines; altitude lines and azimuth lines.

*14 "Foster-Point" Sundial**F.J. de Vries*

Based on material by Fred Sawyer. - The 17th century calculator by Samuel Foster has a semicircular scale with numbering 0..90 degrees (but spread out over 180 degrees) on the left, two quadrants for latitude corresponding

to the "ordinary" dial scales on the right, and a diameter for the hour scale. Foster writes: "Lay a ruler from your latitude in the netter quadrant to an hourpoint counted on the diameter; so shall the ruler show you upon the semicircle the arc required". These 'arcs' were then used to construct the corresponding hour lines on a horizontal sundial.

Sawyer invented the notion of exchanging the latitude and hour scales, obtaining a circular nomogram where only the latitude scale is non-linear. Because the hours also subtend double angles on the perimeter, the entire circle can be drawn just like the face of a clock, thirty degrees representing each hour. $Y = 2R \sin \phi / (1 + \sin \phi)$ describes the latitude scale; it runs from the bottom up to the centre of the circle.

To construct an hour line for, say, four o' clock: draw a line from the clock face "4" division, through the latitude, across to the other half of the circle perimeter. Then a line from the "12" through the intersection is the wanted hour line. Fred Sawyer called a latitude point a "Foster-point", hence the name of the sundial described next:

We can reverse the procedure just described. With a pole style through the "12", note the intersection of the shadow and the circle. Draw a line through this point and the Foster Point, across to the other side of the perimeter, to read the time there. In practice, a ruler would be used, rotatable about the Foster Point.

Because the hour scale is "linear" (equidistant), longitude and EOT corrections are quite easily done by rotating the entire scale the appropriate amount. In the Sawyer design, the date is lined up on two date scales, one fixed and one on the hour circle. The divisions are so cleverly done that an extra 30 degrees account, automatically, for the daylight saving time switch in April and October.

The photograph shows a Foster Point dial made by Mac Oglesby.

20 *Chronicle 2001, Treasurer's account, meetings, news*

Secretary and Treasurer

- The restoration of the St. Johns Cemetery analemmatic sundial in Utrecht is finished. The dial is completely renewed in black stone. - Photoclub 'Eckental' is publishing a photo CD with about 500 sundial photographs. It is called 'Sonnenuhren in Franken' (sundials in Franken country) and costs about €18,-

21 *Time and legislature*

B.P.U. Holman

An overview of the various flavours of time the Netherlands have known. Time was LAT until 1 May 1909, when the local time for the 'Wester' tower (Amsterdam), 4°53'02" longitude, was made legal time for the country. Shortly after this was changed to 5° longitude time. The railways, however, kept Greenwich time which meant a difference of twenty minutes, important when collecting travellers at the station.

In the May 1940, soon after the start of the Second World War, the German occupiers introduced not only MET, but DST as well. Suddenly, sunset was 1 hour and 40 minutes later! After the war DST was abolished, but MET kept, even though the Netherlands are in the Greenwich time zone. DST was subsequently introduced again.

True solar days do not have a constant duration. Differences, caused by the obliquity of the ecliptic and the ellipticity of the earth's orbit, cause true solar time to be fast or slow - by up to as much as 16 minutes - with respect to mean solar time, which was invented to even out these differences.

22 *Oxeye daisy sundial, De Hoge Weide, Lochem*

B.P.U. Holman

Text of an information panel in De Hoge Weide (High Meadows) home. The dial was described in the Bulletin earlier. It is a westerly decliner made of bronze, brass and ceramics. The ceramic numerals' colours match the time of day. A date curve for 2 June celebrates the opening of High Meadows by Princess Margriet (=Daisy).

24 *Sunrise and sunset extremes*

A. van Beld

Every year, there is a day of earliest sunset, and a day of latest sunrise. In the winter of 2000/2001 on latitude 52N, the days were 12 December and 30 December, respectively. These are near the "shortest day" but not identical to it, because of the rapidly changing EOT. Now rumour has it that the pre-Christian origins of the holidays of 6 December (now St. Nicholas) and 6 January (now Epiphany) are related to the early set - late rise dates. The author set out to investigate if that would have been possible at some point in time and latitude.

A calculation shows that in the course of the centuries, until 1582, the extremes are earlier and earlier in the year. This is because there are too many leap years in the Julian calendar. - Combining the requirements for both 6 December and 6 January, the author finds that latitude 37N and 100AD satisfy these. The 37th parallel runs through southern Turkey and southern Italy. The encyclopaedia mentions both countries under "Nicholas of Myra". If we assume a Germanic (48 to 52N) origin for the St. Nicholas holiday, the matching year would be somewhere from 800 to 1000 AD. The encyclopaedia does say: from the 10th century on also in Germany, England and France. The link with the Epiphany, or at least 6 January, would then be absent however.

32 *Sundials in The Netherlands*

W. Coenen

Utrecht 11; The St.John's Cemetery Sundial. J.A.F. de Rijk designed this analemmatic sundial, which was presented to the City of Utrecht at the occasion of the first Society Lustrum in 1983 (the Dutch Sundial Society was founded in 1978). Ten years later, the dial was in bad shape. High praise notwithstanding, the used materials were not up to the extensive use of the "cemetery", which is a busy flower market. Mr. De Rijk has been talking

to city officials ever since, and generally displaying a lot of patience. And with success. In 2001, the sundial was redone in the best quality natural stone.

33 *Literature 1419..1423*

D. Verschuuren

E. Daled writes in about the Huldenberg chronogram, which the author, who was looking for the Roman numeral MDCCLXIV for 1764, did not “get”. Daled points out that it is sufficient to add all the characters that can stand for Roman numerals, and adding DIJD L I V L D I C V L does obtain 1764.

Zonnetijdingen 2001-2: 1419.1 ‘New meridian line in St.-Michael’s Cathedral, Brussels’. A restoration of the line by Quetelet (1836). Six other churches in Belgium have a meridian line. 1419.6.2 Our Belgian friends praise Frans Maes’ webpages (www.biol.rug.nl/maes/zonnewijzers). 1420.3 ‘Meaning well is not enough’, the restoration of a 1650 sundial. Remarkable because numerals counted through 24 hours. *Gnomonica, Storia,... March 2001*: 1421.5 ‘Mirror dial with shadow rod’. A mirror dial casts a spot of light on a vertical wall, but sometimes direct sunlight on the wall washes out the spot. A rod placed over the mirror produces a shadow for the light spot to fall in.