

Bulletin 99.1 English summary.

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Inhoud

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01 Verslag 4e lustrum-bijeenkomst op 10 oktober 1998.

J. van Dort

The fourth lustrum meeting of 10 October 1999

The 20th anniversary was celebrated in "Delta" house, Den Dolder. About 60 were present, among them Mrs. Hagen, wife of the founder, and son Theo; and guest speaker Prof. Dr. H. Baudet. Professor Baudet spoke on "Aspects of Time", a fascinating account of the observations of Aurelius Augustinus in his "Confessiones", and of Pascal. Then, after drinks, the winner of the photo contest were announced. The winning photograph is on p3. The winner and the two runners up received a Konica automatic. All the entries for the photo contest were on display in the back of the large room.

Wiel Coenen announced a new Society book "Zon en Tijd"(Sun and Time), edited by De Vries, Taudin Chabot and De Rijk. This homage to the late Marinus Hagen contains a fine selection of his articles, chosen best to represent his heritage. The first copy was presented to his widow, Mrs. Hagen.

A surprise was a sundial the size of a 5 cent piece. It shows LAT. Only numerals 8 and 9 are shown, forming the year 98. The gnomon bears the letters ZW, and has a round hole in it. Together they stand for ZonneWijzer "Kring" (ring). There is one for every member, as is a copy of the Hagen book.

03 Mutaties ledenlijst, agenda jaarverg. en kroniek 1998.

Secretariaat

New members and changes. Agenda **annual meeting** 1999: treasurer Martin Hugenholtz is resigning from office, the committee suggests Hans Sassenburg as candidate. **1998 chronicle**: Lustrum, garden fair, sundial exhibit in Heusden. Sundial park Genk. Members per 1 December: 164.

04 Verslag van de penningmeester.

Penningmeester

The treasurer's report is available at the annual meeting, or may be requested by members from 1 March.

04 Data bijeenkomsten 1999 en Astronomische data 1999.

Secretariaat

Meeting dates and Astronomical start of seasons (from Meeus' calculations).

05 20 jaar De Zonnewijzerkring: Groningen. Visie van..

E.L.H. Roebroeck

20 years Sundial Society: province Groningen

The author on the last twenty years' history in this province (the northernmost). The second Society province trip was here. Typically Gronings are the spherical sundial (Leens; Verhildersum estate), banister dials with low dial face (Zuidhorn) and the rotating garden armillosphere or *sunpath* dial. They are hardly found anywhere else. - Today, explanatory signs are often placed near the sundials. There is more general interest now. Still, it is hard for new dials, restorations, and finds, to keep up with demolition. And not all new dials are without faults. - The oldest dated dial, a correctly and nicely done slate, is from 1580. The youngest is the "rustic sun wheel" at Noordbroek. It is the start of a didactic sundial series.

06 Nogmaals: Staat de zon op de verkeerde plaats?

R.J. Vinck

Re: Is the Sun in the wrong place?

Why does the crescent of the moon not point directly at the Sun? An explanation and figure show the difference between the moon's elongation (which determines the width of the crescent) and the angle between the perpendicular to the terminator and the direction of the sun. Only at first and last quarter are they equal.

08 Nogmaals: Willem Blaeu graveert zonnwijzer.

A. vd. Beld, E. Roebroeck

Re: Willem Blaeu engraves a sundial

(see 96.3 p20) On the 1638 Blaeu map of the Seventeen Netherlands, there is a picture of a sundial. The authors tried to find if it represents an existing dial of that time. If it does, the declination of the wall would have to be about 40 degrees, so it could not have been at Blaeu's property, the location of which is well known. It might not have been an Amsterdam dial at all, or the design may have been taken from an instrument makers' tutorial, of which too many still exist to search through.

10 *Omhoog brengen Noord-Zuidlijn.*

E.L.H. Roebroek

Upward translation of the North-South line

A description of how the sphere dial of the Verhildersum estate was aligned. The procedure looks quite involved on paper, although the figures do help.

13 *Oude zonnwijzer uit Turkije.*

F.J. de Vries

Old Turkish sundial

Chris Doomernik discovered this sundial in a museum. There are really four dials: two hollow spheres, and two plane dials in a wedge-shaped cutout in the North side. Chris now wants to make a new dial to this design. The author, Fer de Vries and Jan Kragten did the calculations and made a model (see pictures). For 52° latitude, there will be no reading on the plane dials during late autumn and winter. A postscript mentions that the final design is different in inclination and declination, for a better fit in the slab.

17 *Zonnwijzers op basis van Ptolemeïsche coördinaten.*

F.J. de Vries

Ptolemaic coordinate based sundials

We are accustomed to the use of azimuth, altitude, declination, hour angle etc., but Ptolemy used a different system. It was based on three surfaces: the horizontal, the meridian, and the first vertical, which is east-west. To describe a point on the celestial sphere, the surfaces are rotated about their intersections until all pass through that point. Ptolemy then identifies six arcs: three from the point to zenith (or nadir), east (or west) point and north (or south) point; and three describing the angles over which the surfaces are rotated.

Fred Sawyer designed a number of sundials based on this coordinate system. Remarkably, two of these designs are independent of latitude (Sawyer, *Compendium* vol 5 nr 3 Sept 1998, pp 17-24).

Means are described to measure Ptolemaic angles of the Sun using a suitably placed card, the shadow of a pencil point and a degree scale around the card's perimeter. The card carries a nomogram that will then tell time. Three examples are given, together with their generating formulae, but many more solutions should be possible. Readers are urged to send in their ideas on new nomograms or complete instruments.

23 *Uurplaatje voor Italiaanse en Babylonische tijd.*

F.J. de Vries

Card dial for Babylonian and Italian time

An article by Maddux started a collaboration between Maddux, Oglesby, Thom and the author. Object is a card dial with Italian hour lines, also useable for Babylonian time. Literature was searched for similar dials, but only one possible example was found. Although conversion graphs were found, they do not allow direct reading in any other time system than LAT.

24 *Replica van antieke zonnwijzer.*

F.J. de Vries

A replica of an antique sundial

The author and Dees Verschuuren shed their light on a synthetic material replica from Cordoba. The design suggests a horizontal dial for 45° latitude with antique hour lines. However, the lines are not at all accurate, and further investigation into the exact latitude seems pointless. - The three special lines seem to be prayer hours. The text on the face seems to be Arabic, of which there is as yet no translation.

26 *Analematische zonnwijzers met vaste gnomon: reacties.*

J.A. Sassenburg

Reactions to 'Fixed gnomon analemmatic sundial'

Mr. van den Beld suggested using EOT loops in the design. They are shown in the picture.

Mr. Strang van Hees suggested a different derivation, it is given here.

The author was corrected by both on mixing up the concepts of hour lines and hour angles.

29 *Een merkwaardige zonnwijzer. Oplossing puzzle.*

J.A. Sassenburg

A remarkable sundial - solution to the puzzle

The author had a fairly straightforward solution in mind. From Alt, Az and latitude, he solves for declination (giving the date) and hour angle. Accounting for equation of time and longitude, legal time is found. Mr. R. Vinck sent a solution along these lines. Mr. A. vd. Beld sent three pages of text! Had the author overlooked something? Mr. vd. Beld considered atmospheric refraction (negligible effect), size of sun disk (a difference of a day depending upper or lower limb), change of declination (leap years, tropical year slightly shorter than 365.25 days-see the spreadsheet results), and whether in the found year daylight saving time was in effect or not. And so a seemingly simple puzzle brought about rather more than the author had bargained for. In a random draw, Mr. vd. Beld turned out as the winner; deservedly, for all his work.

34 *Verticale zonnwijzer met regelmatig patroon.*

W. Geerts

Vertical sundial with a regular line pattern

This dial is made of hardwood, with hand-milled lines. They are drawn only as far as sun actually falls on the dial face. The oscillations of the hour lines correct for the equation of time. The author inclined the style 35° rather than the correct 51.25° , and placed it perpendicular to the dial face instead of parallel to the earth's axis: a difference of 3.5° . With the bends in the hourlines correcting for these facts also, the result is a pleasingly regular pattern.

36 *Analytische vergelijking van datumlijnen.*

W. ten Heuvel

Analytical equations for date lines

The author derives the x, y equations for date lines on the surface of a sundial. He does this by choosing the dial face as the $z=0$ plane, with the substyle determining the y direction. In the course of the day, the shadowline from the indicator on the style to the dial face describes a cone. The intersection of this cone with the dial face is the date line for that day. At the equinoxes the cone degenerates into the equator plane, and the intersection is then a straight line, perpendicular to the substyle.

[this contribution was sent in in reaction to two articles by mr. vd. Beld (97.3 p23-29, 98.1 p24-27)]

38 *Zonnewijzers in Nederland.*

W. Coenen

Sundials in The Netherlands

Schoonhoven - The restoration of the sundial on the Weigh-house is still not done properly in spite of repeated directions. The lines are now painted on correctly, but the gnomon position is wrong. The author thinks it is also warped.

Valkenswaard 2 - Designed and constructed by S. Poos. Member J. Kragten helped him correct (as far as possible) a design flaw (98.1 p12-15). The dial is cast in brass, 80cm (32in) dia., pole style in the middle of a round surface showing radiant sky with little clouds. Also on the surface are children's footprints and the words "Now here" and "Nowhere". Roman numerals LAT, arabic MET and DST. Whole-hour lines.

39 *Literatuur 1315 t/m 1322*

D. Verschuuren

Literature

Too many to list. Some that caught my eye: **1315**: A new Italian gnomonic periodical. Editor: Nicola Severino, niksev@officine.it. Blue cover, photocopied pages. English language summaries of articles. From the overview given it looks like a very interesting magazine. Look also at the list of web sites. **1317.3**: Helios XXII. A pump makes concentric ripples in the water surface of a pond. The reflection on a grid on the inside of a slanted dome gives the time. **1319**: EOS "Science and technology for man", 15th/12 extra supplement: "The riddle Time". Various articles on the subject, from nanosecond timekeeping to the Milleniumbug, with psychological and farming detours in between. **1321.1**: El Relotge de Sol de Bangor. This equatorial dial was supposedly on the slanting surface of a buttress, but in that case the mottoes on it would have been for the birds (only). **1322.3**: El Cañón Solar del Palais-Royal de Paris. The Paris noon-cannon from 1786 was restored in its own place in 1975. It has now been stolen, and thus ended the last mid-day cannon roar. -But according to the compiler there still *are* noon-cannons in service, see 97.3:1259.2, 98.1:1267.2. **1322.8**: La mas sencilla fórmula para el Reloj Declinante. Mr. Lombardo suggests new formulae for calculating declining dials. They are derived from old geometrical constructions by Clavius.

Diverse berichtjes op blz. 4, 11, 12, 16, 25 en 31. - Mixed news on these pages

Bijlage: Tabel zonsdeclinatie en tijdsvereffening 1999.

Th. J. de Vries

Sun's declination and Equation of Time for 1999

My copy only had the last half of the year- twice. ...