Bulletin 04.1 English summary of the Contents of the May 2004 Bulletin, nr. 84

Sundials.. Clear as day! 1988 poster text. B.P.U. Holman 10
On the tenth anniversary of the Sundial Society, a silk-screen poster was printed in three series of six hundred. This article is a reprint of the explanation, by the artists, that went with it. The complete design calls for eight printings, using separate film stencils.

Double sundial on "der Puthof" E.L.H. Roebroeck 12
This sundial has two hour-scales. The first scale is a white, fixed, ring reading local apparent time in a limited range. A second, copper-coloured, scale is moveable to accommodate a fixed longitude correction. Moreover, this second scale can be adjusted, by means of a disk on the north side of the sundial, for the Equation of Time. To this end, the disk is grooved and marked with the names of the months.
Design and realisation: Eugène Roebroeck and Wybe Westra

Standards and values for sundials A.G.M. Bron 13
The author introduces guidelines for the registration of sundials. He proposes to use unique address numbers (adding a, b, c etc. as necessary). If a sundial moved to a new location, the old address number would refer to that. - Then there would be sundial numbers, unique to the dial, even if a dial would cease to exist. - The present sundial archive, mostly paper files, will be modernised, many of the documents going in polythene bags for better keeping.

Sundials in The Netherlands: Geldrop 01a en 01b A.G.M. Bron 14
Two vertical decliners, brown Trespa®, each 6x200x170mm (1/4x8x7”), declinations: 7.3 degrees east and 82.7 degrees west. Longitude adjusted. The hour lines and furniture are shallow grooves filled with green paint. The actual numerals are made of yellow paint filled pits in a five-by-seven matrix. The curves are for -EOT, that is, their reading should be added to the dial time to obtain standard time.

In search of the origins of the pole style sundial F.W. Maes 15
Part one: introduction and character of the age. - That Utrecht should have the oldest pole style sundial is not necessarily true. Zinner lists 27 ‘modern’ (equal-hours) 15th-century sundials, with Utrecht in seventh place. Still not bad. Zinners 1964 book catalogues 5000 pre-1800 sundials and contains references to 1939 and 1956 books by him.
Both the 1956 and 1964 book use data from the 1939 work, but Zinners conclusions are not always conform. Of two sundials on the Braunschweig Dom, one from 1345 with hour lines shifted towards the horizon, and one from 1346 with hour lines towards noon, Zinner writes in 1939 that the first is a mistake and the second used a pole style, even though he found such a style only first mentioned in 1434. In 1956, he writes that the first (now dated 1334) shows planetary hours, and the second “also” used a horizontal gnomon. In 1964, the first is again just a mistake. The author wishes he had read Schaldach first, who mentioned the discrepancies in Zinners work. Meanwhile we may assume that the pole style dial first appeared shortly after 1400. - The old Arabians knew about the pole style principle, as is shown by the 1371 Umayyad Mosque sundial. Yet Schaldach does not believe that the European pole style dial has its roots in Arabia: Of about a hundred Arabian texts from the 14th and 15th century concerned with sundial principles, not one mentions the pole style. Armed with these new insights, the author will look into European dials in the next part.

Sundials in The Netherlands: Geldrop 02 A.G.M. Bron 19
This 1.4m (55”) armillary sphere is hard to overlook, but was not registered earlier. In 1966, the workers of the Tweka tricot factory presented the dial to the management. It was placed outside the head office. Later, the factory moved, and eventually the dial moved to the Geldrop Castle vegetable garden.

The Huy dial D.L.J.M. Verschuuren 20
This is a slate horizontal dial, octagonal, 488mm (19”) diameter. There are hourlines, shorter half-hour lines, and short quarter-hour lines. To the north of the style triangle is the number 1743, to the south the Crosiers’ cross, flower motives, an oak branch with acorns and the motto *In Hoc Signo Vinces* (In this sign thou shalt conquer).
Its present location is the Crosiers’ St. Agatha monastery (Holland). The dial is correct for 50 degrees north, the latitude of Huy (Belgium) where it may very well really belong. On the other hand, the Maaseik (Belgium) dial, just a year different in age, is really from Holland.

Double use of a sundial pattern F.J. de Vries 21
Usually a sundial designates time in hours, but the horizontal sundial in the figure, made for 52 degrees latitude, indicates the hour angle in degrees. Moreover, declination lines were provided, also marked in degrees, and over a range larger than which the sun can ever occupy, showing how the curves change from hyperbola to parabola and ellipse (an actual sundial with such hour angle and declination lines is in Maassluis; it was described on our Web site in January 2004). The article shows a possible style triangle for this horizontal sundial. An index on the pole style serves for the readout of the declination of the sun.
This sundial is now rotated about the East-West line through an angle of 90 – 52 = 38 degrees, and the new position shown. The result is that the original pole style is now vertical, and that the sundial now indicates azimuth and altitude of the sun.
This game teaches us that, mathematically speaking, hour lines and declination lines are shaped similarly to azimuth and altitude lines.

The large shadow plane sundial: Genk nr. 10 F.W. Maes 25
A description of the shadow plane or ‘blocks’ sundial in this sundial park. Not easy to read for the uninitiated, the difficulties are increased by stray numerals come loose from the ceramic tiles. - The shadow plane principle makes use of the observation that one may detach the hour planes that contain the sun for any specific hour, from the pole style originally used, and place them anywhere one likes, only keeping their orientation in space correct. A pole style sundial is therefore just a special case of the shadow plane sundial; the intersection of the shadowplanes with the sundial face creates the hour lines.
Even on Oyens’ earlier smaller blocks-sundial, readout is not easy. Several solutions have been found, one of them the Sonius Tree that will be discussed in the next instalment.

Sundials in The Netherlands: Utrecht 02 A.G.M. Bron 30
On its 25th anniversary, the Sundial Society gave the City of Utrecht a sundial for Dom Tower. The Dom has had a sundial since 1626, but lost that around 1966. Member Gerrit Sasbrink designed and made the new sundial and Mayor Brouwer-Korf unveiled it on 28 June 2003. – The horizontal dial is made of 5 mm (3/16”) brass sheet and measures 400x500mm (16x20”). The pattern is engraved, the incisions filled with dark red paint. The surface is matted to increase legibility. The readout is in apparent local time.

Sundial "The Ford", Coevorden E.L.H. Roebroeck 31
The sundial for Care Centre "De Voorde" in Coevorden was unveiled on 8 August 2003. The design incorporates the history of the town of Coevorden and of De Voorde.
"De Voorde" is derived from "Coevorden". The town and its name have their origin in a ford in one of the streams that run there. The Dutch name for a ford in this peat and marsh area is voorde, and this cow-ford was called Coevoorde, later to become Coevorden. – The sundial face shows the brook around the equinox line, with white and blue-green wavelets. The ford is in the middle where the summer and winter arc are closest together; this is De Voorde. – The sundial uses colours symbolising the course of life and hour markers of diminishing size. As the day progresses, the markers become smaller, symbolising the years

still left us. – Dimensions: width 3.4m, height 2.4m (11' x 8')

Did you know? Can you prove it? J.A.F. de Rijk 33
The classic construction of the hour lines for a horizontal dial calls for quite a large sheet of paper. Fortunately, there is a better way. Supposing the hour lines 12 through 3 are already drawn, we construct a rectangle with the '3' line as its diagonal. The hour lines for 12 through 3 divide half of the other diagonal in three pieces. By making the other half of that other diagonal the mirror image of the first, we find the points through which to draw the hour lines for 4 and 5. – Obviously, the hour lines for 6 through 12 in the morning are the mirror image of the ones just discussed. – Who can prove this elegantly?

An Introduction to Gnomonics, part 5 F.J. de Vries 34
This instalment starts with Shadow planes. A figure shows a set of 24 half-planes about the polar axis, representing the shadow of that axis for each of 24 hours. It follows that if we intersect this bundle of half-planes with *any* other plane or curved surface, the individual intersections will represent the correct hour lines on that surface.
Not all 24 hours are sunny, which is what Irradiation time is about. To calculate it, we must consider that- The sun must be up, that is, it should be on the correct side of the *horizontal* plane, and- The sun must be on the correct side of the *sundial* plane, or face. The first condition is easily checked with the equation for the diurnal arc. As it happens, so is the second, if we consider the sundial face parallel to the horizontal plane somewhere else. This is the Translation Rule. With both conditions in a time-declination graph, it is quite easy to see what the irradiation time is on any given date.
Instead of local apparent time, we may choose an hour line layout indicating civil time for our zone, disregarding the Equation of Time, that is. Doing this is called Longitude adjustment of the dial. Starting with a shadow-plane bundle rotated through an angle representing the difference between our own longitude and that of our zone standard will accomplish this.
A brief mention is made of the Cylinder dial, in which the edges of the scale double as gnomons. The hour lines for consecutive hours are 30° apart when measured from the centre, but that is the same as 15° measured from the edge which casts the shadow.

The Mun dial Chr.C. Doomernik 39
The 76 inhabitants of Mun, celebrated the 750th anniversary of that community in 2003 with, among other things, the raising of an appropriate monument.
It is a horizontal ring-shaped sundial, fixed to a leaning column that also supports the gnomon as it projects through the centre of the ring. The ring shows time adjusted to daylight saving time, in Roman numerals.
The gnomon is made of stainless steel, and the column and ring of Cor-Ten® steel (a naturally oxidizing product to provide the appearance of rust).
The sundial sits on a large boulder in a small square along a bicycle trail. Two inviting benches provide for a pleasant pause on a sporty trip.
Design: Chris C. Doomernik. Ring dimensions: diameter 1.20 m (4'), thickness 2 cm (¾").

Literature 1489..1496 D.L.J.M. Verschuuren 40
List of our books in De Koepel D.L.J.M. Verschuuren 47
EOT and Declination tables for 2004 T.J. de Vries 49

Colour pages: a selection from the illustrations in this bulletin Editors
As an experiment, some colour printing was added to the Bulletin. As it is still rather expensive, the use is limited to a reprint of some of the photographs in the Bulletin.