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R. Hooijenga, T. Brandsmastraat 42, 1964 BV Heemskerk, The Netherlands
Email: redactie@de-zonnewijzerkring.nl

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The Utrecht Academy building was home of the official part of the fifth lustrum celebration on Saturday, 28 June 2003. Present were, among others, Mrs. A.H. Brouwer-Korf, Mayor of Utrecht; Julien Lyssens, president and Jan de Graeve, vice-president of the Flemish (Belgium) Sundial Society; and Klaus Eichholz of Arbeitskreis Sonnenuhren.
After speeches by president Wiel Coenen and by the Mayor, Mr. Lyssens presented a book by Coen van Climpert. Next was a talk by Fer de Vries on twenty-five years of sundial life. He recalled initial doubt if anyone would show up for Society meetings - “not a dog will show up” is the expression here - but attendance has always been good.
Fer also mentioned the development of the curved wire bifilar by Thijs de Vries, and of the latitude-independent sundial and the concept of the equatorial projection dial family by Hans de Rijk.
After refreshments, at 14:48 MET, Mayor Brouwer unveiled the new Dom sundial the Society presented to the City.
Then on to Buurkerk, where a replica of an old vertical dial was painted on the front.
After that, University Museum and the new armillary sphere by Gerrit Sasbrink. Curator J. de Haan thanked Gerrit but told us that the Borsje noon dial, originally on Bilt Street, was not quite ready yet.
The Museum has several fine sundials on display, and several members had a look inside. Some also went outside and visited St. Johns and the Van Renswoude Fund building. Finally, a snack and another drink in the Museum garden concluded this pleasant day.
The author adds thanks for the efforts of not only those already mentioned, but also Jaap van Dort and Dees Verschuuren.
Utrecht now has three more sundials, and when the noon dial is in place, even four, for a total of twenty-four sundials - a good second place after the capital Amsterdam.

Bifilar sundials with negative wires F.J. de Vries 16
The horizontal bifilar sundial with two crossing wires as a shade device was invented in 1923, by Hugo Michnik of Germany. An entirely new idea of Thijs de Vries was to replace one of the wires by a bent wire. It became possible to construct entirely different hour line patterns, and even to realise particular patterns, such as parallel hour lines or parallel date lines. Nevertheless, all these alternatives still have one main point in common: both wires lie on the same side of the hour line pattern.
Fabio Savian separates the hour line pattern from the reading surface and places the two wires in front of, behind, or on either side of the hour line pattern. He refers to this as “positive” and “negative” wires.
In his drafts the wires are always straight and parallel to the hour line surface, but the wires do not have to be at right angles.
An example here is shown. In front of the hour line plane is the positive wire, g1; behind it, the negative wire, g2. This second wire lies in a surface on which the sun projects the hour lines and the shade of the positive wire, and on which the time is read.
In the future, we hope to be able to report more concerning these bifilar gnomonics.

Genk #4: Polyhedron sundial with EOT F.W. Maes 18
An amazing example of didactics, this object incorporates all basic types of pole style dials: four vertical dials on the sides, an equatorial and a polar dial on the “roof”, and a horizontal dial on the extended base. Design: Willy Ory, artwork: Anja Roemer (and not Römer or Romers).
All the constituent dials except one read standard or summer time without EOT correction. One could call this “apparent zone time”, meaning apparent local time for 15 or 30 degrees east longitude. In publications of the Sundial Society, an asterisk is often used, thus: MET* or MEZT* (*midden-Europese (zomer-)tijd**, = CET* or CEST*).
The equatorial dial is the simplest, both in principle and in construction. The dial face, in the equator plane, has a short perpendicular pole style and equiangular hour lines. On this object, it is the only dial showing local apparent time.
Armillary spheres are often called equatorial as well. Admittedly, they have an hour band in the equator plane, but the author finds the relation remote. He does see a strong

kinship between horizontal, vertical, equatorial and in general arbitrarily declining and inclining dials, all having hour lines converging in the pole style foot point. Likewise, he finds vertical west and east dials and polar, ring and cylinder dials related, because of their hour lines all parallel to each other and to the pole style.
The vertical south and the horizontal dial share a single pole style. The picture would have been even more convincing had the hour lines of both been extended to the intersection of the sundial faces. Both dials show MET*, and an instruction reads **-E = MET**. With an implied **readout** in front, this means: the dial readout, minus the equation of time from the graph, is central European time.
A name for a vertical and horizontal dial with a common style is *diptych*. Portable foldable diptychs, with a string style, were common.
The polar dial and the east and west vertical dials are related. Their hour line patterns are identical, except for a difference of six hours. The numerals differ 7 and 5 hours however, because the polar dial reads OET* (*oost-Europese tijd**, = EET*) which is really the same as MEZT* (CEST*).
A north vertical dial is not so common, but it does work during the summer half of the year. Here, hour lines run from 6 to 9 and from 19 to 21 hours CEST*. A north and south vertical dial would share a common pole style if on the two sides of the same plane.
The EOT graph is over the south dial. The definition used here is that EOT is local apparent time minus local mean time. The International Astronomical Union and the Nautical Almanac use this definition. Many well-known authors use the opposite definition, however.
Finally, in “other polyhedrons”, Maes mentions sundials on fives faces of a cube, and 25 sundials on a 26-face polyhedron, possibly Alsation, in a Horn private garden. A concave polydedron example is the Menkema estate dial of 1722, which totals 34 dials.

An Introduction to Gnomonics, part 4 F.J. de Vries 23
In this instalment, Fer introduces the cardinal-directions cube sundial with its north, east, south and west *direct* dials and the horizontal dial on top. He shows how to construct the dials, and why the north dial only works in the early morning and the late evening in spring and summer.
The vertical *declining* sundial and its construction are subject of the next paragraph. By definition, and for the whole globe, the declination of a south-facing wall is zero; the sign is reckoned positive for west, negative for east declinations.
Logically, the following degree of freedom is *inclination*. In constructing an arbitrarily inclining *and* declining sundial we find a remarkable parallel between latitude, declination and inclination on the one hand, and the construction details style height, angle between substyle and line of steepest descent, and substyle hour angle, on the other. Some equations follow, as well as a practical example. - A special dial is one with a dial face parallel to the pole style, directed north or south; this is a polar dial. As the style height is zero, the hour lines are parallel. Actually, the direct east and west dials answer to the same description.
Fer introduces a consistent notation for sundial plane orientation. The normal to the sundial plane intersects the celestial sphere in point P. Specification of P in terms of azimuth and height will fix the sundial plane.
Azimuth is counted from south, positive towards west, and this will be the declination of the sundial. A horizontal sundial has an indefinite [not infinite] declination; we will use d=0 in that case.
There are three possible choices for the other co-ordinate: height, zenith distance or nadir distance; all three have been used in gnomonics. Fer chooses zenith distance. The zenith distance is the same as the angle from the horizontal to the back of the sundial face.
To be sure, different systems are possible; the principle point being to stay consistent. Some examples using the definitions covered are: horizontal dial, i=0 d=0; vertical direct south, i=90 d=0; vertical direct north, i=90 d=180; equatorial dial, south side, i=90+f d=0; polar dial, southern hemisphere, south side, i=180-|f | d=0 (check this!).