

## A Transparent Window Dial

Thibaud Taudin-Chabot

My search for sundials without easily damageable parts was not very successful. So I started thinking and experimenting. Sitting in my chair I tried to visualize the trace the sun would leave in the sky. If I could only get that trace on the window! That was to be the principle of my sundial: the reading point had to be stationary and 'look' at the sky. So all I had to do was construct a sundial which I would place vertically on the glass; the traveling sun would cast its shadow over the stationary point, and during the whole day the shadow pattern would move over this reading point.

Many hours of calculating followed and finally I could draw my sundial. A very familiar pattern emerged on my drawing board which made me think again, for what I saw was a normal vertical sundial for that spot. Had I made a mistake?

No. The proof is very simple. Normally you have the sun, shadow point and sundial pattern in this linear sequence. However, this line remains exactly the same in space if you interchange the latter two of these points to give the sequence: sun, sundial pattern and the 'shadow' point. This shadow point even remains stationary, so you can use it as the reading point - and there it is!

So the recipe is:

*- Construct a vertical sundial as if you were mounting it to the exterior of your window.*

*- Rotate the sundial 180 degrees around the horizontal axis perpendicular to the window. The dial is now laterally inverted and upside down.*

*- Now mirror the shadow point to the inside of the window around the horizontal axis in the sundial surface. This is the third 180 degree turn made. All is now ready.*

I constructed this sundial using an overhead transparency and a colored felt tip pen. When you put figures on the dial, you have to think of constructing a normal vertical sundial on the outside of the window. After following the recipe described above, everything will be OK. Even your text will be perfectly readable as shadow text which moves over your reading point.

It is even possible to create your reading point on the floor and to construct the sundial as if the whole wall is a large window. If that wall actually happens to have only three windows, you use those parts of this large sundial (*i.e.* wall), and paint the appropriate line segments on each window. A scale drawing will be of great help in this case.

Enjoy this new type of sundial. If you construct one following this description, please send me a picture of the result:

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## A Stained Glass Diptych Pattern

Fred Sawyer

My immediate reaction upon reading the prior article by member Thibaud Taudin-Chabot was the realization that his basic idea could be applied to produce a stylized stained-glass sundial design!

Consider the web of hour and declination lines characteristic of a vertical dial declining 45°. These two curves are connected at various points by hour lines emanating from a single distant point and providing the internal structure of the webbing.

Suppose now that only the afternoon portion of this dial is used; invert it as Taudin-Chabot suggests. Now

combine it with the morning portion of a vertical dial declining 45° to the southeast and similarly inverted.

These two dials join along their noon lines and form a diptych (two-paneled) structure with panels at right angles to each other (each 45° east or west from the meridian plane). The winter solstice and hour lines form a rising sunburst with rays streaming up into the cathedral-like spire formed by the summer solstice line. The single focal point for both panels of the dial sits exactly midway between the panels. The design is perfect for the stained glass artisan!