



# ILLUSTRATING SHADOWS

www.illustratingshadows.com  
Silver City, NM  
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**Please check:** [www.illustratingshadows.com/reference](http://www.illustratingshadows.com/reference) for any updates, typos, clarifications, or corrections. Feedback is welcomed, and any fine tuning not only appears in the update page, but also in subsequent copies of the book. That page provides links which you may access directly:

Please send your feedback or comments to the author. And once again, thanks for acquiring the book.

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Illustrating Time's Shadow	the book	p390	same as the appendices
Illustrating Time's Shadow	appendices	p124	formula A8.21a needs clarification

it was shown as:-

$$z = \text{atan} \left\{ \frac{\sin ( ha )}{\sin( 90 - ha - dec ) * \tan ( lat )} \right\}$$

it should match appendix 7, and be:-

$$n = \text{atan} \left[ \frac{\sin( \text{atan}( \frac{\sin ( \emptyset ) * \tan ( \text{sun hour angle} )}{\tan ( \emptyset ) * \sin( 90 - d - \text{atan} ( \sin ( \emptyset ) * \tan ( \text{sun hour angle} ) )} ) ) )}{\tan ( \emptyset ) * \sin( 90 - d - \text{atan} ( \sin ( \emptyset ) * \tan ( \text{sun hour angle} ) ) )} \right]$$

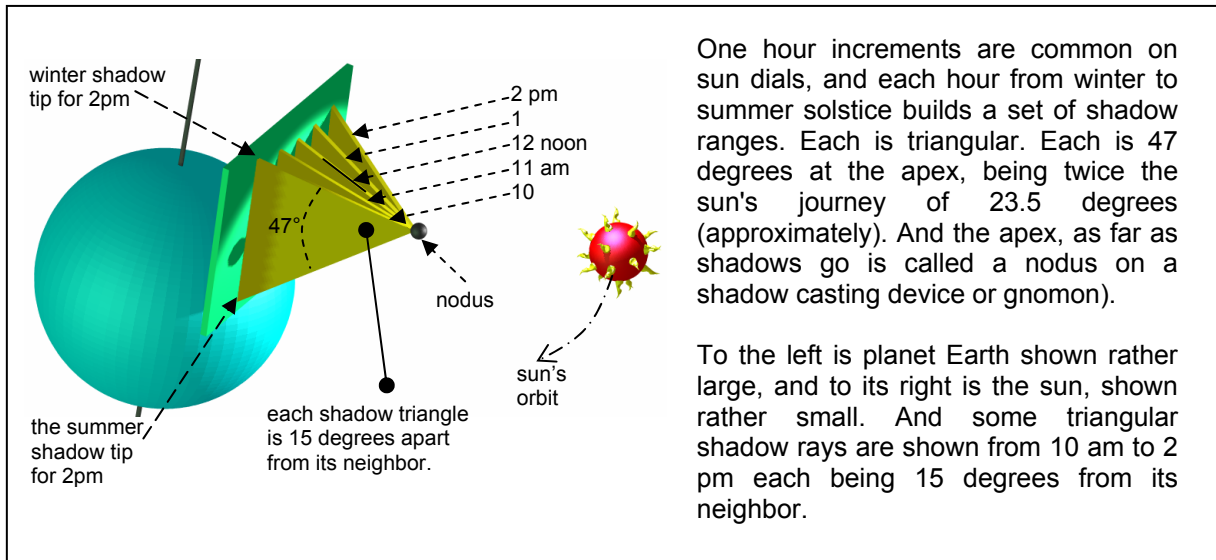
or, keep that original displayed formula:-

$$z = \text{atan} \left[ \frac{\sin ( ha )}{\sin( 90 - ha - dec ) * \tan ( lat )} \right]$$

but add the definition "ha" is the hour line angle of the **surrogate horizontal** dial which is a more useful formula than the lengthier one above as it shows the v-dec derivation.

TRIVIAL TYPO ~ ILLUSTRATING TIMES SHADOW CHAPTER 14

The hours shown were 10 am to 2pm, the below is correct. **Jan 18, 2010**



One hour increments are common on sun dials, and each hour from winter to summer solstice builds a set of shadow ranges. Each is triangular. Each is 47 degrees at the apex, being twice the sun's journey of 23.5 degrees (approximately). And the apex, as far as shadows go is called a nodus on a shadow casting device or gnomon).

To the left is planet Earth shown rather large, and to its right is the sun, shown rather small. And some triangular shadow rays are shown from 10 am to 2 pm each being 15 degrees from its neighbor.

TRIVIAL CLARIFICATION ~ ILLUSTRATING TIMES SHADOW CHAPTER 9, PAGE 74

**January 1, 2011:** The paragraph on the bottom right of page 74 would better read...

To the left, the radials have been rotated 3.2 degrees, being the dial location (108.2) minus the legal meridian longitude (105). This works because the complete dial, including the gnomon, is rotated around the style, i.e., around the polar axis, see Atkinson's Theorem in chapter 15.

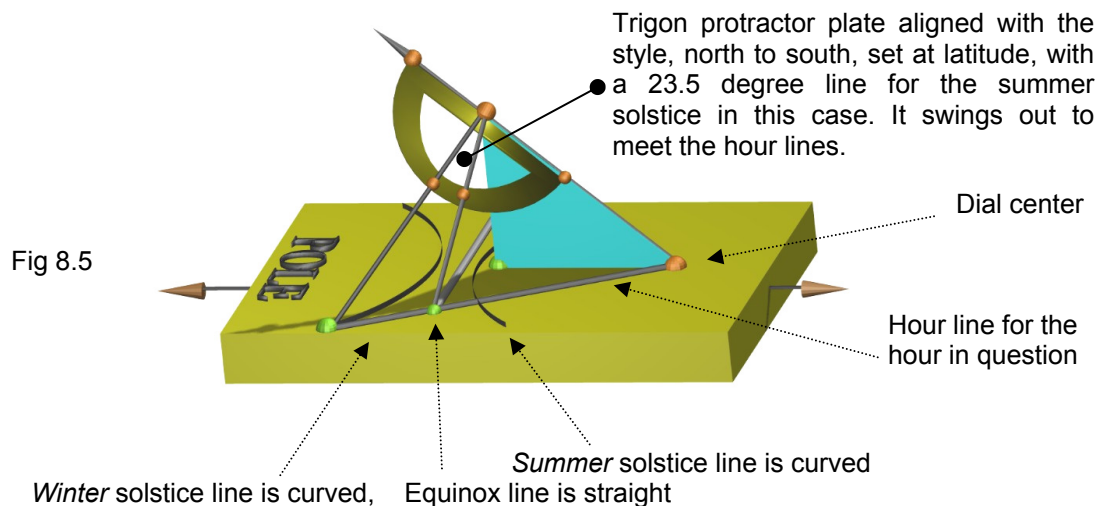
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ILLUSTRATING SHADOWS

**Figure 8.5** The *solstice naming* was the wrong way round

4/11/07

The trigon's protractor plate could be turned sideways, and then lines marked up and down by 23.5 degrees for the winter and summer solstices.



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ILLUSTRATING SHADOWS

DeltaCAD Macros

June 3, 2007

Some DeltaCAD macros (the horizontal dial macros) had cases where for some longitude differences, the extreme hour line could be drawn on the wrong side of the boundary box. Please download the revised versions, which also have an extra decimal point in the printed angles, as well as the ability to do north as well as south hemisphere dial plate designs.

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ILLUSTRATING SHADOWS

minor typo

December 31, 2007

Page 175 of book 1 (Illustrating Shadows) has "RECLINES 30" and "INCLINES 60" as spurious text. The PDF version has this corrected, the printed edition does not. This was caused by a bug in Microsoft Word.

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ILLUSTRATING SHADOWS  
minor typo

March 16, 2008

DL significant digits. Most people using these tables and spreadsheets do not use, nor do they need to use the DL figures. However, just in case...

Page 115 in chapter 12

3/16/08

The DL shows 1.2 hours (1hr 12 m) and it should be 1.28 hours and 1hr 17m

Page 156 in chapter 16

3/16/08

The DL shows 1.2 hours and it should be 1.22

Page 250-270 in appendices

3/16/08

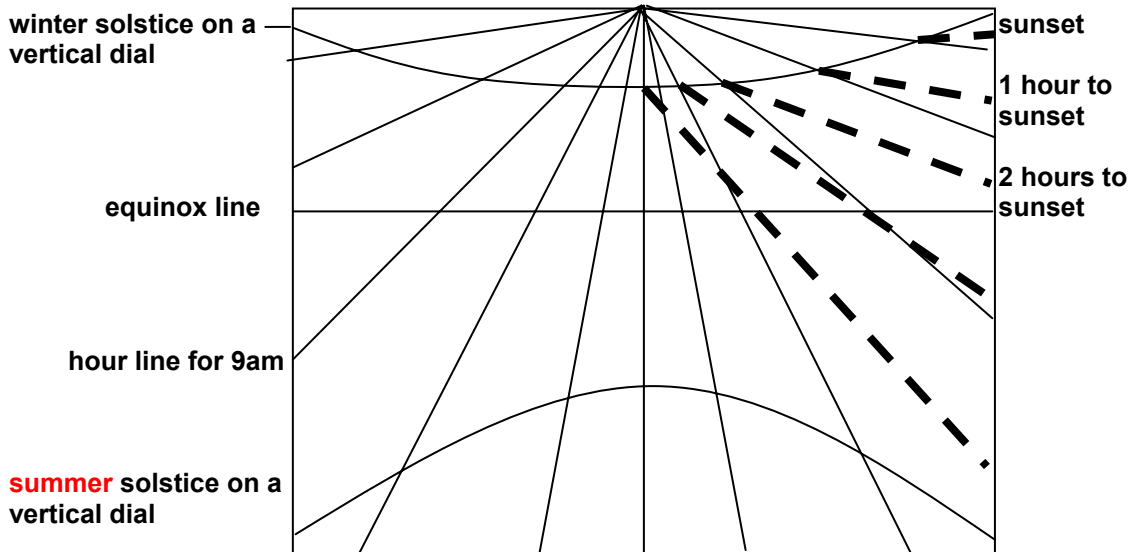
The appendices for decliners and great decliners were 1 significant digit, they are now 2 significant digits. And the spreadsheets for them have been updated and are in the "b1" folder on the web site.

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ILLUSTRATING MORE SHADOWS  
minor typo

December 31, 2007

Page 89 of book 2 (Illustrating More Shadows) had the words "winter solstice" on both the winter and the summer curves, it should be corrected to match the following.

#### A VERTICAL DIAL WITH SOME ITALIAN HOUR LINES



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ILLUSTRATING MORE SHADOWS  
minor typo

February 3, 2008

Page 217 has a C program with the line:-

```
printf ("Uncorrected hour line angles \n" );
```

which should read:-

```
printf ("Corrected hour line angles \n" );
```