

Back to Basics : Sundial Design Resources

A new column by Claude Hartman - A column for the novice written by a novice

I continue to look for the simplest answers and clearest examples, with as little mathematics as possible.

Many times it is hard to avoid computation if we want good results. However, we can look for ways to make it easy - such as using a calculator. After all, finding a sine function on the calculator is not much different than it was looking it up in tables or using a slide rule. They are all just memory devices. In June I hope to discuss computation with the calculator more thoroughly. *What issues or difficulties have you had with that?*

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Here is the proposed list for future discussions. *If any of you have ideas on these questions, please drop me a line.*

March issue. Things to look for - evaluating sundials. What do you look for when you inspect a sundial? What are some good "rules of thumb" for identifying "fake" sundials? Can you add to what is on the NASS website FAQ? I think I have a good way to use what is there without calculation!

June issue. Drawing dials - simple ways to do it or how to use what is out there. How can we interpret those trigonometric formulas? Can we merely treat trig as a "button on a cheap calculator"?

September issue. Construction - setting up, adjusting, materials, methods. How do you make a correcting wedge for both Latitude and longitude? The latitude is easy, what about longitude? Are there any easier, less calculating ways than those in Compendium 7-2? I think I have one but it seems complicated to set up rotating about the polar axis. Is it worth it?

This issue's article

Following my plan to cover the basics each year, this time I look at resources – the popular sources for information about sundials. If I have missed one of your favorites, let me know.

Sundial Design Resources

What resources do you use in pursuit of your interests in sundials? Of course that depends on what those interests are. In this article I have tried to bring together the sources of information for sundial design that I have found mentioned in several places. If I miss something you have found useful, please drop me a note so I can pass it along next time.

Many of the sources listed are computer oriented. If you don't have a computer, many of these references can be easily accessed from a public library's Internet connection.

NASS Repository CD

The single most important resource for me is the North American Sundial Society Repository. This places all the Compendium Back issues plus the NASS Sundial Registry, the Gnomonics Bibliography (Checklist of Dialing References), the BSS Sundial Glossary, Selected sundial Patents, Sciatheric Notes - I (a collection of Fred Sawyer's articles that appeared in the BSS Bulletin), The Dialling Universal (a copy of George Serle's 1657 book on dialing scales), Dialing Software (a collection of NASS digital bonuses). All this does not fill up the single CD so upgrades will have even more! In addition you can search the CD as well as use hyperlinks and bookmarks. This makes quite a good beginning for a sundialist's library for only \$30. Even if you do not have a computer, this CD has what most libraries do not. Taking it to a library to read on their computer would be the same as using references they do have.

Books

Of the eight books reviewed in The Compendium 1-3, August 1994, by Ross McCluney, three are probably most easily found. I list here the more recent editions of these.

Mayall, R. Newton and Margaret W., *Sundials, Their Construction and Use*, Sky Publishing Corporation, 49-50-51 Bay State Rd., Cambridge, Mass. 02138, 1938,1973, 1994. Library of

Congress Card No. 73-76242. ISBN 0-9333346-71-9.

Waugh, Albert E., *Sundials, Their Theory and Construction*, Dover Publications, New York, 1973. Published in Canada by General Publishing Company, Ltd., 30 Lesmill Rd., Don Mills, Toronto, Ontario. Published in the U. K. by Constable and Co., Ltd., 10 Orange St., London WC2H 7EG, ISBN 0-486-22947-5.

Rohr, Rene R. J., *Sundials, History, Theory, and Practice*, Dover Publications, New York, 1996, ISBN 0-486-29139-1, QB215.R613.

NASS web site

Of course, an important resource for us all is the NASS web site, www.sundials.org. In addition to some information in the new FAQ section, Bob Terwilliger, the site's webmaster, has organized a great list of sundial resources that can be found on the Internet in the "Links" section. He has organized this under topic headings that can guide you to what you need. Bob continues to collect listings so it pays to review these listings often.

The Sundial Mailing List

In 1996, Daniel Roth at the University of Cologne established a mailing list on the Internet. This allows subscribers to receive messages and make replies much like the older "Bulletin Boards" but run entirely through e-mail. A wide range of both interests and expertise is represented. You can subscribe and merely listen or ask questions of your own. First-timers can post questions and get answers from experts. Experts ask questions of experts. Often such questions lead to long discussions or "threads" by many people around the world. Some of these threads I hope to use in articles in the future.

To subscribe to the mailing list send a message consisting of the following two lines:

subscribe sundial
end

Send to: Majordomo@rrz.uni-koeln.de

Please don't forget the "end" because otherwise the list's processor may misinterpret your signature.

Past discussions are posted on www.astroarchive.com/g/. Click on "search" on the left. This takes you to a window that allows you to search for a topic. Select "Sundial" in the "Select list" box. The archive goes back to April 1998. The mailing list also was archived on a site called "eGroups". This has merged into Yahoo. However, I found on November 16 that the archive did not have listings past July, 2001.

Software

Harold Brandmaier reviewed sundial design software in the *Compendium* vol. 4-4. That was in December of 1997. Since then most of the software reviewed has been revised and improved. Again, the NASS Repository CD gives you most of these and many smaller programs. In the 32 issues of the *Compendium*, many smaller programs have been offered.

Of all the programs that have been offered to NASS subscribers, the Dialist is a most valuable workhorse. Written by Fred Sawyer and Bob Terwilliger, it gives probably all the sundial information you could require for a specific location and time. I keep it on my laptop in case I need it when travelling.

Many software programs are available for download on the Internet. See the link for "Generators and Calculators" and "Software" in the Links section of the NASS web site. Bob has recorded several comments about the items in the software section.

What time is it?

How often must a dialist have an accurate clock? Finding true north for a sundial alignment can be done without it but not as conveniently. If you want to check the performance of a sundial a very good time is needed. Here is a list of sources:

Telephone

A voice time service can sometimes be found from the local Telephone Company. This may do if you are on the road and can't remember other numbers. However, you can get it from the US Naval Observatory. Here is the information I got recently.

Time Voice Announcer, Washington, DC:
202-762-1401 & 202-762-1069.

Time Voice Announcer, Colorado Springs, CO: 719-567-6742 (Long distance time may be delayed).

This voice service is also available via assured landlines (no satellite delays) on toll number

900-410-TIME = 900-410-8463

(A toll charge of \$.50 for the first minute, \$.45 each additional minute applies.)

Radio

Of course, you can also hear the Time Voice Announcer by radio. WWV, the National Institute of Standards and Technology, Time and Frequency Division's broadcast of the atomic clock, has been broadcast for many years on 2.5, 5, 10, 15 and 20 MHz. You need a good short-wave radio to cover the best frequency in your area. Other countries also broadcast time signals.

You can now buy clocks that automatically tune in these broadcasts to reset themselves. There is also supposed to be wristwatches that do this! I was told that some VCRs reset their clocks from a signal on TV broadcasts. (Mine has a habit of just blinking at me without some attention.)

Computer

The Internet is a great place to get the correct time. I recently upgraded to Windows XP and it can reset the clock by dialing a synchronizing service automatically. For others, look on the USNO time service department web site, www.tycho.usno.navy.mil. Under "What time is it" there are links to sources for programs for various computers. Or try www.nist.gov for official time.

If you go to www.time.gov, you can select your time zone and then get an animated clock (using Java). This is a great visual aid for setting a wristwatch to the nearest second. The animated clock in the USNO site will not run with the Internet Explorer.

Enough?

If I have left out something you use a lot, why not share that with everyone? Drop me a note.

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Digital Bonus: Shadows, EarthWatch, et al.

The digital bonus for this issue of *The Compendium* consists of four items. The first bonus item (shadows162.exe, 2.1Mb) is the recently released version 1.6.2 of François Blateyron's excellent program *Shadows*. *Shadows* is a freeware program, which allows you to create a sundial for a specific location and orientation. The program prints the drawing full-sized, provides a template of the style, and provides the co-ordinates of lines for drawing large sundials. Readers are also referred to Blateyron's interesting website which includes photos of a wide variety of sundials, many of them designed with this software:

web.fc-net.fr/frb/sundials/defaultgb.htm

The second bonus is Larry Nagy's *EarthWatch* 4.0, a new Windows version of the popular shareware program NASS distributed a few years ago. *EarthWatch* 4.0 graphically displays a dynamic Map image of the world, displaying the present locations of the sun and moon, the solar analemma, and now even a dynamic onscreen sundial that can show apparent or standard time. *If you enjoy EarthWatch, please support the shareware concept and register with the author.*

The third bonus item is the file rs405eng.hqx (7.8Mb), which will provide Mac users with the Adobe Acrobat Reader version 4.05 for the Mac operating system versions 8.6 and later.

Finally, the fourth bonus item is the *ThrottleBox Viewer* (tbxview30.exe, 6.1 Mb) – a free program available on the Internet. The 1935 cartoon *The Sunshine Makers* cartoon is an 8Mb download from www.throttlebox.com/Content/1005.shtml. The cartoon is free; readers can download the file from that site and enjoy the show with this viewer. Sawyer Dialing Award recipient Robert Adzema identified this 7.5 minute classic 1935 cartoon as an important influence in the development of his ideas as a dialist/sculptor.

These bonus files are not included with the Internet download, but each of these files is available on the Internet. For *Shadows*, go to the website noted above. For *EarthWatch*, go to www.elanware.com. For the Acrobat Reader: www.adobe.com/products/acrobat/readstep2.html The *ThrottleBox Viewer* is available from www.throttlebox.com/Content/1005.shtml.