
THE 2022 NASS CONFERENCE
NASHVILLE, TENNESSEE, AUG. 11-14, 2022

Recorded by Bob Kellogg and Jack Aubert

This year's social event, bus tour of sundials, and conference facilities were all organized by the Montgomery family: Mark and Phyllis Montgomery, and Aaron and Sarah Montgomery. They devised an interesting bus tour of Nashville sundials with its delicious lunch stop, and ensured the conference arrangements and the conference dinner all went smoothly. Fred Sawyer's equally valuable contribution was in organizing the schedule of conference talks, dealing with registration, conference planning and administration, chairing the conference, and presenting several talks. Bob Kellogg's contribution included 3D printing of dozens of sundials for presentation to delegates, along with organizational support during the conference.

NASS thanks them all for their efforts.



2022 NASS Conference Group Photo. From left to right and front to back: Paul Ulbrich, Tish Grant, George Perkins, Fred Sawyer, Len Berggren, Phil Sawyer, Jack Aubert, Will Grant, Marvin Taylor, Bob Kellogg, Pam Morris, Frank King, Jeff Kretsch, Bill Thibault, Sarah Montgomery, Steve Johnson, Gloria Mielke, Aaron Montgomery, Betsy Wilson, George Wilson, Phyllis Montgomery, Joyce Robinson, Dave Robinson, Mark Montgomery, Jeff Brewer. Not shown: Susan Haynes and Marc Boone.

Thursday 11 Aug. – Afternoon Social and Door Prizes

At 4 p.m. the Vanderbilt room at the Nashville Holiday Inn was opened for an afternoon social gathering of NASS members and spouses/partners.



Conference Social Thursday Afternoon at the Holiday Inn

As is our tradition, a draw for door prizes was held, with a host of winners:

Prize	Winner(s)
Mark Lennox – Boyd, <i>Sundials: History, Art, People</i>	Aaron Montgomery George Wilson
Bellingham Sundial Model	Steve Johnson Mark Montgomery
A.P Herbert, <i>Sundials Old and New</i>	Gloria Mielke
Frank W. Cousins, <i>Sundials: The Art and Science of Gnomonics</i>	Len Berggren
Margo Anne King, <i>Designing Sundials</i>	Marvin Taylor
Reproduction Glynne Sundial	Tish Grant
Nocturnal (A GeoCoin)	Betsy Wilson
Fred Sawyer, <i>Encyclopaedic Dialing</i>	Phyllis Montgomery
Fred Sawyer, <i>The Theory of Sundials</i>	George Perkins
Solar Eye	Joyce Robinson
René Rohr, <i>Sundials: History, Theory and Practice</i>	Jeff Kretsch Corena Alexander
Universal Ring Sundial	Dave Robinson
Regiomontanus Sundial	Sarah Montgomery
Christopher St. John Daniel, <i>Sundials</i>	Jack Aubert
Fred Sawyer, <i>Analemmatic Sundial Sourcebook</i>	Jeff Kretsch

Friday 12 Aug – Bus Tour of Nashville Dials

Our bus departed at 9:00 a.m. for a whirl-wind tour of Nashville sundials, starting at Vanderbilt University to see a unique dial that has a rotating equatorial ring with a hole in the upper section, casting a pinhole of light onto an analemma on the lower section. The rotation of the equatorial ring tells the time when the spot of sunlight is aligned to the proper side of the analemma for the date.

Next stop was a special visit to the Tennessee Governor's Residence. After visiting the Armillary Sphere in the Kitchen Garden and a tour of the residence, attendees gathered for a group photo.



Vanderbilt Equatorial Dial #853. Aligned for 10:15 a.m. on 12 Aug. 2022.



Tennessee Governor's Residence Armillary Sphere #1069

The Armillary Sphere is decorated with symbols of the state. There are three red enameled tomatoes (state fruit) for stars in the state flag, an eastern box turtle (state reptile), tulip poplar (state tree) branches at the north end of the gnomon, and a mockingbird (state bird), resting in the branches.

Just outside Nashville in Hermitage, is Sundial Park, a 9/11 memorial titled *Clear for Landing*. Plaques surround the sculpture made from plane stabilizers honoring the four crash events. Although it has hour marks from 6 a.m. to 6 p.m., upon analysis it really functions only on the summer solstice.



Sundial Park “Cleared for Landing” Memorial with conference attendees in the foreground. #1055.

Attendees took a lunch break at Thistle Farms restaurant, a not-for-profit social enterprise helping to heal, restore, and employ women survivors of trafficking, prostitution, and addiction. All profits go to their social mission. It was an excellent lunch!

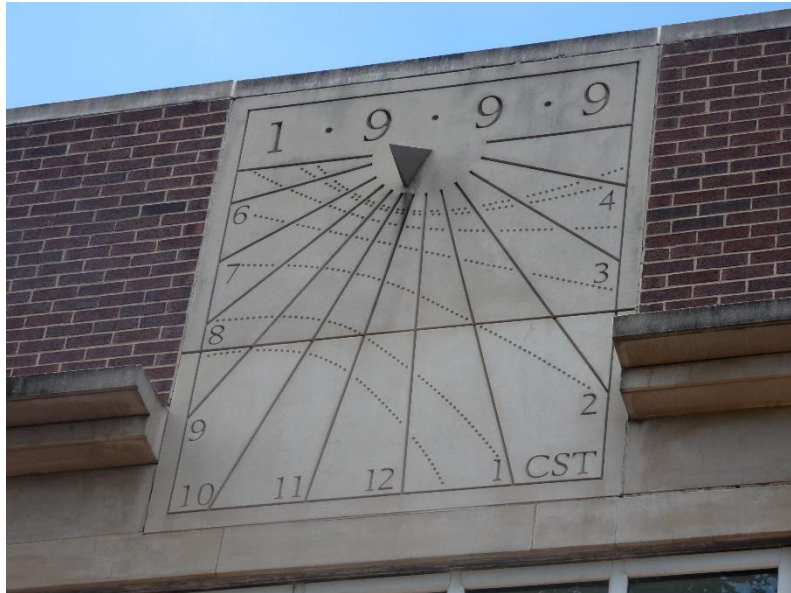
At Cheekwood Botanical Gardens in Nashville, there are a number of sundials spread out within the 55-acre estate.

Of particular note is a copy of a dodecahedral dial from Trinity College in Hartford, CT, which in turn is a dial originating from The Abbey, Storrington, Sussex, UK.



Will Grant Inspects the Dodecahedral Dial at Cheekwood Gardens #1051.

The tour ended at Montgomery Academy to see a vertical dial atop the Ingram Science Building. It was designed by Kenneth Lynch & Sons with the help of Fred Sawyer in 1999.

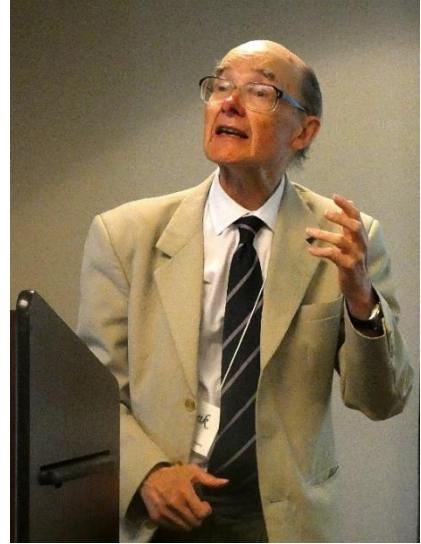


Montgomery Academy Vertical Dial #425.

Saturday/Sunday 13/14 Aug. – Conference Presentations

After a morning breakfast, Fred Sawyer distributed Sundial Bingo sheets containing squares with images from the presentations to be given over the next two days. Each sheet was unique. The first two people to spot a full row, column or diagonal of five received a copy of the French Republican Calendar.

Frank King began and ended the conference. His starting presentation was on the French Republican Calendar (FRC). Months had names such as Nivôse (Snowous), Pluviôse (Rainous), and Ventôse (Windous). The calendar came into force on the Fall equinox of 1792 and ended with the coronation of Napoleon I on 11 Frimaire, Year XIII. It was designed to be more rational than our Gregorian calendar: months all had thirty days with five or six intercalary days inserted between years, which always began on the autumnal equinox. But unlike the reform of weights and measures, neither the calendar nor decimal time caught on. Frank facetiously encouraged everyone to try using the FRC for a year.



Frank ended the conference on Sunday with his presentation on Heliodrome Projections, showing how one can explain and illustrate the daily path of the sun across the sky from solstice to solstice. The concepts are made simple for an introduction to the sky and movement of the sun.

Between the start and end of the conference, Frank gave a third presentation ‘The San Petronio Meridiana – Counting the Scales’, where different scholars have counted 2, 4, or 6 scales along the meridian. Frank explained that the problem was two-fold: “What is a scale?” and “When did it exist?” as the meridian went through four physical reconstructions between from 1575 to 1776.



Bob Kellogg presents Dials of RADM Ammen Farenholt.

Bob Kellogg gave two presentations: 'The Strange Shape of Sundials' and as speaker for historian Ron Marcell, 'RADM Farenholt and Sundials for the US Navy'. Ron Marcell has identified 14 Farenholt style sundials at US Naval Hospitals and history of the rear admiral himself.



Len Berggren presented 'Some Sundials I Have Known'. Len first became interested in sundials studying the Hemispheric Dial (ca. 250 BCE) of Aristarchus, even making a papier mâché miniature copy.

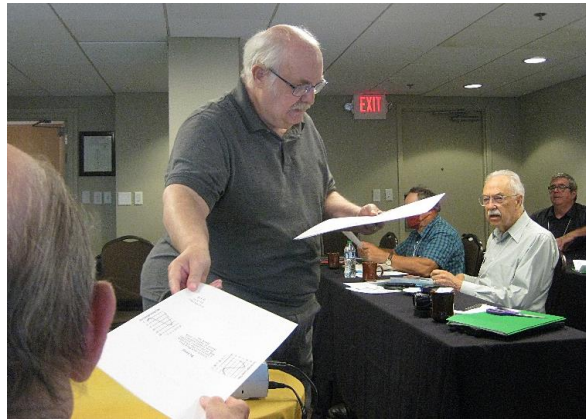
As a professor at Simon Fraser University he, along with fellow NASS member Brian Albinson, made a dual analemmatic dial in 2003 – “This began my serious involvement with dials, and I am grateful to NASS for referring Brian to me.”

Brian wrote to every school principal in the area, offering to pay for materials and do the designs, provided students and parents participated to make the analemmatic sundial. Shown below is one of the surviving analemmatic dials: Highland Elementary School, [#926](#).



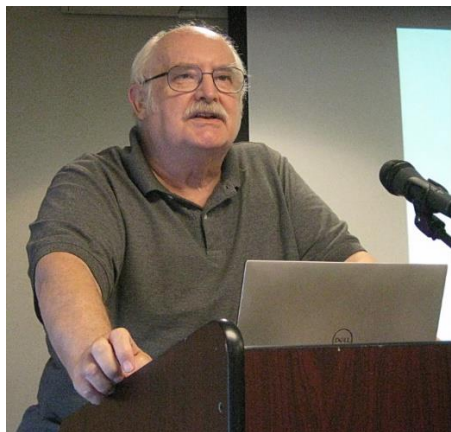
Len continued his discussion with other dials he has known: polar dials in Iran, a complete absence of sundials in Cyprus, a gift to him of a universal equinoctial dial from his wife, a seaside dial of pebbles in Cyprus he watched a visiting group construct that then washed away with the tide, a paper polyhedral dial from the Sundial Group of Germany's Society for Chronology, a laser cut wood heliochronometer, and a brass Gunter's quadrant in mahogany case.

Fred Sawyer made several presentations and a dial construction project. The project for each attendee, under Fred's guidance, was to make a modified Liebscher Time Box, a paper sundial folded into an open cube that is self-orienting (not requiring alignment to North). Liebscher is a theoretical physicist who also has a passion for sundials, inventing and patenting a solar compass that showed direction from knowing only your latitude and date.



Fred Sawyer passes out individualized cut-out dials based on Liebscher's Time Box.

Fred then did a "Parlor Trick" discussing a universal dial where knowing the latitude is not required. As only Fred can do, he walked the audience through the construction of a 'pin dial' that cast a shadow line whose length and angle are both used on a dial with an unusual layout. In another presentation on latitude independent dials, Fred introduced 'A New Hectemoral Sundial Design', originally developed 17 years ago. The hectemoros angle is the angle from the west point on the horizon to the sun (a combination of altitude and azimuth). For a given date (sun declination) and time (hour angle), as latitude is changed, the end of a vertical pin gnomon's shadow traces a hyperbola. Fred designed an alidade to sort the hyperbolas and developed rules to find the valid hyperbola solution and to differentiate between hours before and after 6.



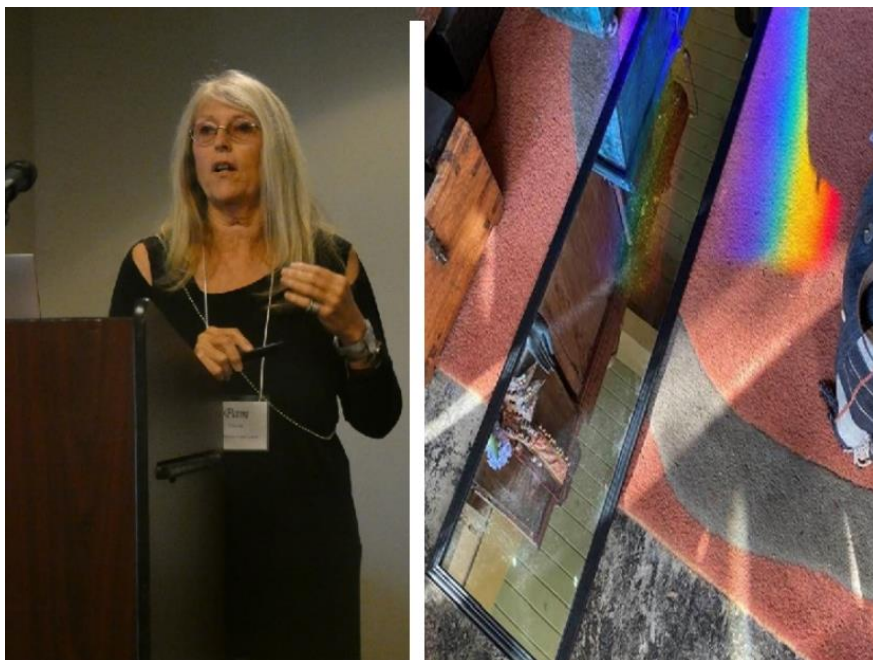
On a completely different note, Fred presented 'Recalling Captain Bailey', a captain in the Union Army (1862 - 1863) who became an antique dealer specializing in clocks, and who ultimately succumbed to making sundials. We remember Captain Bailey from Alice Morse Earle's book *Sundials and Roses of Yesterday* (1902), that showed him in his workshop. Fred showed that this photo was one of a series of promotional photos taken at the same time, but with slight variation of pose and material on the wall and workbench. At the end of the NASS dinner, attendees received a 125th anniversary reprint of Bailey's book *Bailey's Sun-Dials ... And How Made*.

Dave Robinson presented 'In the Heat of the Moment: Forging Sundials' and discussed his interest in creating dials out of raw metals. He discussed designing and building sundials where (1) the underlying dial plate may have irregular shape, (2) the dials are hand forged, and (3) materials are borrowed from nature.

The results can be quite striking. Dave started out making simple equatorial sundials. He found there was a market for them; other variations quickly followed. He explained that the next generation of forging will heavily rely on virtual gnomonics, with the possibility to design sundials using 3D modeling software. Dave showed his experiments in designing a bowl sundial using Computer Aided Design (CAD) software to determine: (1) Can I take a flat plate/disk, chase the dial geometry onto the disk, then forge the dial into the shape of a bowl? (2) Is it possible to forge a shape and then appropriately chase the dial geometry onto the surface of that shape? Dave continues his experimenting to make interesting sundials.



Artist Pam Morris presented 'Time...Light...and... Shadow', discussing the feelings one gets from seeing light, color, and shadow. For example, body time is regulated by the length of day, and the position of the sun, north or south. Pam showed examples of the use of light, shadow, and color to evoke emotional responses.



Pam Morris illustrates light and color with a vertical photo of the floor in her home.



Mark Montgomery's unique Window Dial

Mark Montgomery talked about 'A Window Sundial', and in particular "How to make a Nocturnal Dial, to see what's a'clock at Night by the stars, or at Day by the Sun, when it shines bright, or enough to be discerned but not clear to give a shadow." In making the glass window dial, Mark followed Strode's book *A New and Easy Method to the Art of Dyalling* (1688), a copy of which was presented to one attendee (Pam Morris) following Mark's talk. Look out for a Compendium article about Strode's dial in the December 2022 issue of THE COMPENDIUM.

On Sunday, Fred Sawyer presented 'Antique Hour Lines.' Temporal hours divide sunrise to sunset into twelve hours whose length varies depending upon the season. For a horizontal or vertical dial these lines are normally drawn as straight lines. But are the lines really straight? Solstice to equinox to solstice points lie on a straight line. But what about the points in between? Over the centuries arguments have gone back and forth from straight line to S-curve of some sort. Fred showed the deviation from a straight line is extremely small... but it is definitely not straight. Fred concluded by presenting a novel dial design that incorporates the bizarre higher-order curves that generate the required hour 'lines' and simultaneously indicate both the antique temporal hour and the modern equal hour. [See page 10 of this issue.]

Steve Lelievre, unable to attend the conference in person, made two presentations about 'A Circumferentor' (his implementation of a kind of Surveyor's Compass) and 'An Orientation Device' he has under development for determining the declining and reclining angles of a wall where a sundial will be mounted. Multiple observations with a simple device are combined using an Excel optimization feature. Preliminary results are very promising but further work is needed to deal with spurious results that seem to arise in some situations.

Fred showed *Tickless Time*, a 1918 one-act comedy of sundials, time zones and clocks, modernized a bit by director Shelia Spencer.

Conference Dinner and Dialing Prize



This year the Sawyer Dialing Prize was awarded to Frans Maes of the Netherlands

... for his creation of an introductory course on dialing, built on the idea of supervised self-study; for his successful multi-year running of that course in Europe; and for his inspiration of NASS' development of a North American version.

Frans prepared short videos to thank NASS for the award and to discuss his interest in sundials and development of his course.

Recognition was given to the 42 dialists who completed the inaugural NASS version of the course, called *Elements of Dialing*. Four in attendance at the Conference (Len Berggren, Steve Johnson, George Perkins, Marvin Taylor) were

presented with their certificates, dialing scales, and Walton Sundials.

On Saturday evening, dialists and partners attended the annual Conference Dinner. Camaraderie and conversation extended into the night, ending with parting bags of mementos. For the dialists, mementos included Bailey's book *Sun-Dials and How Made* and individual Walton Dials for all.