NASS Conference Retrospective – Ottawa 2025

Robert Kellogg, Potomac, MD

NASS 30th Sundial Conference Begins with Social Gathering

Before the official opening the NASS Conference at the Le Germain Hotel in Ottawa, NASS members and spouses gathered together to greet each other and renew years old friendships. The conference was officially started at 4:30pm on Thursday afternoon Aug. 7th by Mark Montgomery, who welcomed registrants to the 30th annual NASS conference. The schedule followed other conferences with a Friday bus tour of local dials followed by dial presentations on Sat/Sun and of course, the conference dinner on Saturday night.

Mark introduced NASS officers (Pres. Fred Sawyer, VP Bob Kellogg, Sec. Steve Lelievre, and Treas. Mark Montgomery), conference host and hostess Mike & Esther Moghadam, attending members of NASS from UK (Frank King, Christine Northeast, and Geoff Parsons) and Mexico (Martha Villegas and José Montes). All registrants found a pleasant surprise in a return of $30 CA for the conference cost which was appreciated.

Fig. 1 Mark Montgomery Welcomes NASS Registrants

In the tradition of past social gatherings, Fred orchestrated the "bag give away" where each registrant placed tickets in 16 bags for prizes displayed on tables around the room. And the winners were:

Reproduction of Colonial American Sundial	Zoon Nguyen [1]
Walton Double Planar Polar Sundial	Will Grant **[2]
Fred Swayer's *A Magic Shadow Show* and *The Silent Voice of Time*	Bob Manning
Barry Perius' *Celestial Mirror – The Astronomical Observatories of Jai Singh II:*	Steve Johnson
Kevin Karney's *The Equation of Time*	Frank King
Frank W. Cousins' *Sundials – The Art & Science of Gnomonics*	Pam Morris
Universal Nomographic Sundial (designed by Fred Sawyer and realized by Kevin Karney	Bill Thibault
Don Petrie's *Solar Tetrad*	Martha Villegas
Fred Sawyer's *Pleasure of the Thing Done*	Bo Manning
Mark Lennox-Boyd's *Sundials: History, Art, People*	José Montes
A Kala Pocket Sundial	Marvin Taylor
USNO *The Multiyear Interactive Computer Almanac*	Joyce Robinson
Glenn Van Brummelen's *Heavenly Mathematics, The Forgotten Art of Spherical Trigonometry*	Bryan Preas
M. Roth & K.A. Noble's *Sundials of Europe*	Roger Bailey
Mike Shaw's *Universal Dialist's Companion* (2)	Paul Ulbrich Mike Moghadam

Everyone received a clever address card size *Solar Clock and Compass*, designed for the latitude of Ottawa by Roger Harris. Cut and bend the corner into a gnomon and it becomes a pocket altitude dial. (Fig. 2)

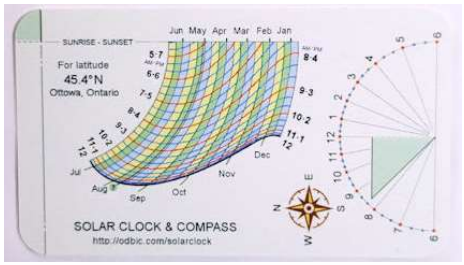


Fig. 2 Ottawa Card Dial by Roger Harris

[1] Philomena Sawyer drew the ticket for Zoon, whose joining was delayed by work. He joined the rest of the conference Friday afternoon.

[2] Will Grant was the final recipient of this prize. Paul Ulbrich beat the statistical odds and won the Double Planar Polar Sundial three times, conceding the dial to Will.

FRIDAY DIAL TOUR

Mike Moghadam arranged a very exciting tour of important sundials in Ottawa. The bus left promptly at 8:45, with the first stop at the Mother House of the Sisters of Charity of Ottawa on the corner of Sussex Drive and Bruyere Street (NASS #127) where two vertical dials are high above the sidewalk. The SW dial is 7x8 feet (2.1m x 2.4m) and SE smaller dial 7x4 feet (2.1m x 1.2m). These dials were created in 1850 by Father Jean-Francois Allard and were the first vertical dials in Canada.

Fig. 3 Sisters of Charity of Ottawa Dials

The second stop was to see the hemispherium (Fig. 4) carved into a 40 inch (100 cm)

Fig. 4 José Montes examines Hemispherium with NASS members looking on

square cube of granite tilted to its latitude of 45.5°. (NASS #449). Originally located in Rideau Falls Park, NASS visited the dial at its present location in Rockcliffe Park Pavillion that overlooks the Ottawa River.

Third stop on our dial tour was the Canada Science and Technology MuseumWe were greeted by David Pantalony, Curator of Science and Medicine, who introduced us to the archival collection of sundials and solar compasses. This was followed by historical remarks from Jean-François Lozier, Curator, French North America of the Canadian Museum of History.

NASS was invited to took at (but please don't touch) a variety of historical instruments. One that caught the most attention was the Polar Dial used during the Scott Expedition to Antarctica, bringing about much discussion of knowing how to correct compass deviation to obtain true north. (Fig 5)

Fig. 5 David shows NASS the Polar Dial as part of the Archive collection

We then paused for lunch in the Archive room (Fig.6) and afterward David gave us a tour of the Science and Technology Museum itself (Fig. 7)

Fig. 6 Lunch and Discussion of the Instruments at the Museum of Science and Technology

Fig. 7 David Patalony and NASS members at the Museum. Dominion Observatory. Astrograph Telescope in background

After the tour of the Museum, we were back on the bus to see the William Tyrell Macoun Memorial Sundial (NASS #827) in the Ornamental Gardens of the Central Experi-mental Farm. The garden is famous for flowers and its simple 12-inch (30.5-cm) horizontal sundial.

Fig. 8 Bill Thibault and Pam Morris inspect gnomon inclination of the W.T. Macoun Memorial Sundial

The next stop was the Dominion Observatory and its large 20 foot (6m) floral dial in front of the observatory. (Fig. 9)

Fig. 9 Floral Sundial of Dominion Observatory with Bldg. 9, the Astrograph Observatory in Background

We received a tour of the Observatory grounds by Sharon O'Dell, the Canada Science and Technology Museum. From the exterior of the Observatory building, we saw the transit room (Fig 10), and photographic room. Then, briefly sat in the main hall with its large concrete telescope pier while Sharon explained that at the turn of the 20th century the Observatory was the heart of astronomical observations to set Canada time as well as defining the Canadian Prime Meridian. At Bldg. 7 the seismometry survey was also an important mission.

Fig. 10 Dominion Transit Circle Window and Prime Meridian Plaque

Today, all the astronomical and seismological instruments have been moved elsewhere as Ottawa lights, traffic, and nearby construction rendered scientific observations impossible.

NASS conference members posed for a group photo (Fig. 12) at Bldg. 9, which housed the complex astrograph for making sky surveys. We saw the astrograph at the Museum of Science & Technology

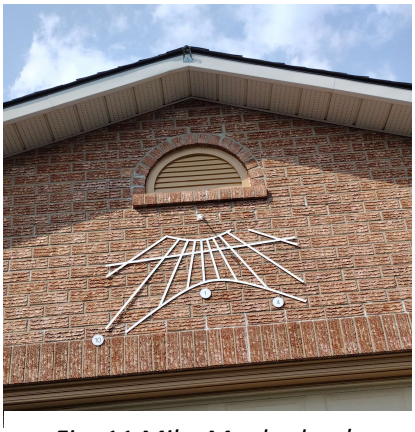


Fig. 11 Mike Moghadam's Sundial

The last stop of the day was at the home of Mike and Esther

Moghadam. Mike was able to show off his 47 x 28 inch (120 cm x 71cm) vertical decliner on his garage, cut out of a single piece of 1/8 inch (3mm) steel plate. (NASS #1106). The arrow point gnomon showing hours from 9am to 6pm (summer hours) was designed by Mike's son. (Fig. 11)

Fig. 12 (Back Row Left to Right) Steve Johnson, Bob & Bo Manning (barely visible), Bill Thibault, Geoff Parson, Jack Aubert, Mark Montgomery, Marvin Taylor (barely visible), Evan Boxer-Cook, Mike Moghadam, Steve Lelievre, Jeff Brewer, Maddy Lelievre, Russel Goyder, Christine Northeast, Jim Stegenga, Will Grant, José Montes, Tom Kreyche.

(Front Row Left to Right) Dave & Joyce Robinson, Bob Kellogg, Frank King, Bryan & Kathy Preas, Thad Weakley, Pam Morris, Chris & Roger Bailey, Paul Ulbrich, Phil & Fred Sawyer.

(Center-Front) Martha Villegas. Not in the photo were Marc Boon & Susan Hayes, Lizzy Longsworth, Phyllis Montgomery and Kate Aubert.

Photo taken by Sharon O'Dell

Esther and family provided refreshments and delicious carrot cup-cake dials to NASS at the end of a long day. (Fig. 13)

Thank you so much!

Fig. 13 Cup-Cake Dials thanks to Esther Moghadam and family

SATURDAY & SUNDAY PRESENTATIONS

Each NASS Conference has interesting and thought-provoking presentations. This was no exception, with each day filled with captivating presentations, broken up only by individual discussions during the breaks and examining the dialing displays.

The Janar Mantar Sundials in Jaipur

Geoff Parsons on a recent trip to India presented the dialing complex in Jaipur, created by Maharaja Sawai Jai Singh II in 1716. For the Great Samrat Yantra, the huge 27m tall equatorial, time is graduated on the marble equatorial blocks in 2-second intervals. How do you read the time to that accuracy with a fuzzy shadow? "To obtain accurate time reading, hold a thin stick parallel to the shadow about 1 cm above scale (Fig. 14) and move right and left in the sundial shadow until the stick shadow disappears."

Fig. 14 Reading time of the Great Samrat Yantra

Humans are Sundials

Pam Morris reminded us all that our bodies react to sunlight creating hormones according to the color and intensity of light: "This means that you don't just see light, you are a light responding mechanism." (Fig. 15) She gave examples of circadian rhythm and sleep, vitamin D, melatonin and serotonin production, and metabolism of sugar by the liver, just to name just a few.

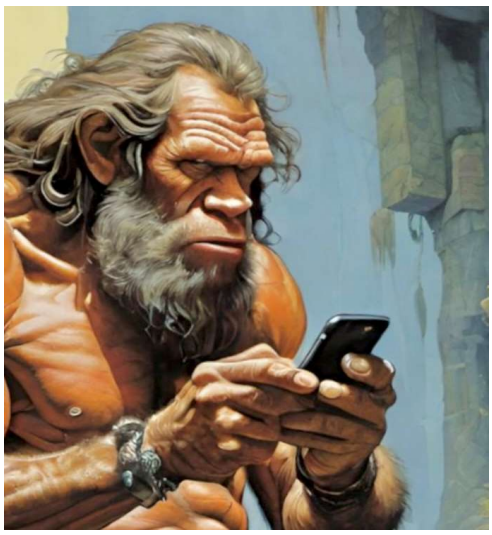


Fig. 15 Our tools, no matter how advanced…do not change our need for and our response to natural sunlight"

Recasting Eble's Horoscope – An Excursion in Context

No, Fred did not mean an astrological device. Eble's Horoscope is actually a sundial patented in 1763 (US Patent #39,860). (Fig. 16)

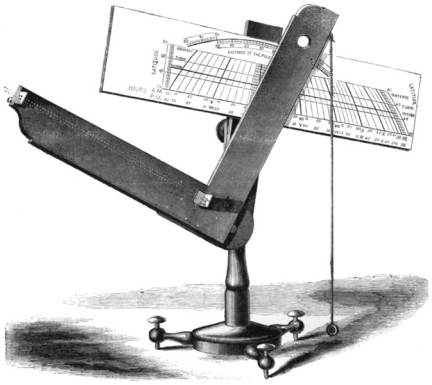


Fig. 16 Eble's Horoscope

"*The accuracy of the (well-known) Müller sun altitude tables was not enough for me. I therefore began to calculate such tables myself in 1837. Since this task seemed too tedious to me, I tried to avoid the calculation [by] using instruments. M. Eble April 13, 1854*

Fred proceeded to derive the cosine equations for the paper chart seen in Fig. 16.

The Sundial Problem From a New Angle

Russell Goyder, a physicist, started with a sun-centered coordinate system [e_1,e_2,e_3] with e_1 pointed to aphelion and then applied rotations to earth surface frame [f_1,f_2,f_3], then to dial face [m_1,m_2,m_3] and gnomon [n_1,n_2,n_3]. From this he created a sun ray vector radial to the sun and passing not only through the center of the earth, but through the earth surface frame at the dial. Projections of the gnomon's shadow can be performed for any declination, reclination, and gnomon inclination. Russell makes his math available as a python program at: **https://russellgoyder.ca/analemma**

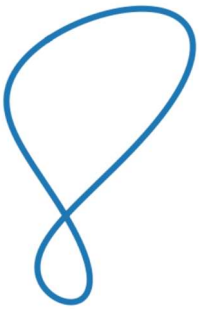


Fig. 17 Earth's analemma at 5pm at the equator

Beside creating a wide variety of sundials, using the orbits and inclinations of planets you can create the analemma as it would appear with a clock syncrhonized to the planet's daily and yearly motion.

Hartmann's Exquisite Fundamental: Drawing Dials with the Analemma

Evan Boxer-Cook described the evolution of the analemma from Vitruvius to Georg Hartmann in his work *Practika* (1518 to 1528). This is not the analemma of Fig. 17, but the "exquisite fundamental drawing" (Fig. 18) that allows the custruction of a wide variety of

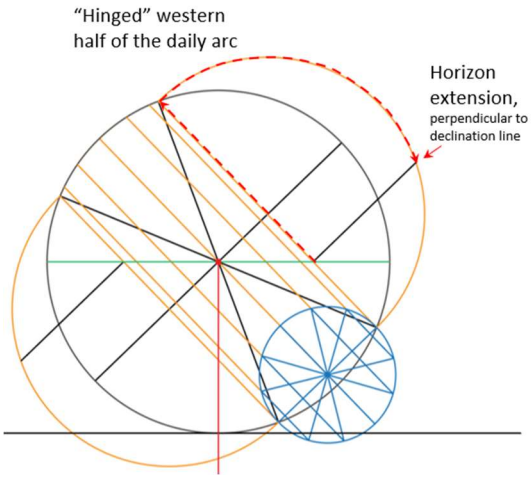


Fig. 18 The "Exquisite Fundamental Drawing" originally described by Vitruvius

horizontal or vertical sundials (flat or cylindrical). Historically, temporal (seasonal) hours were used, but with a slight modification, modern equal hours can be constructed just as well.

Evan walked us through the construction of a sundial using the Hartmann/Vitruvius drawing step by step to make a sundial (Fig. 19).

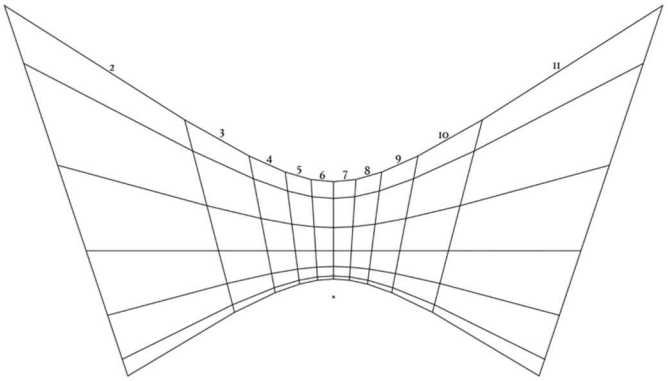


Fig. 19 Final construction of a horizontal sundial with seasonal hours

On Second Though…Roofed Spherical Sundials

Mark Montgomery decided to make a spherical roof sundial with a top hole for sunlight that casts a spot of sunlight to determine the time. But he discovered that drawing the hour lines is a bit complicated than first imagined. (Fig 20)

Fig. 20 Roofed spherical dial at the Archaeological Site of Baelo Claudia near Bolonia in souther Spain. Photo by Christof Dez

Mark had to use the “exquisite fundamental drawing” of Vitruvius to begin the layout of lines.

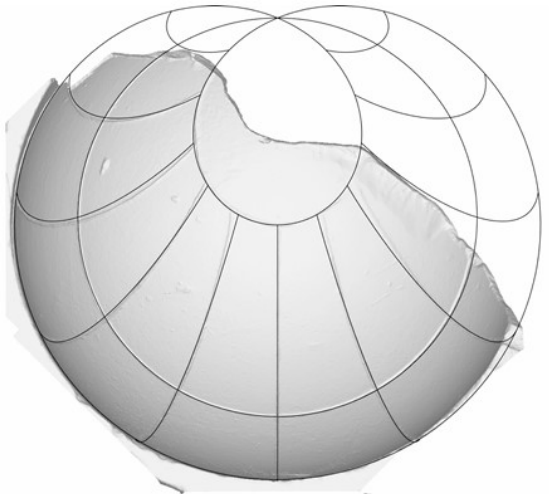


Fig. 21 Alexander Jones drawing of declination and hour lines onto the Pompeii Granario Roof Dial at 41°

https://archive.nyu.edu/handle/2451/69873

“Alexander Jones in his article *Greco-Roman Sundials: Precision and Displacement* studied the Pompeii Granario dial. Here he made an orthogonal projection of the declination and hour lines onto the Equatorial plane for 41° superimposed over the dial. Look closely and you can see an almost perfect match between Jones’s calculated lines and those inscribed on the dial. You will observe the equinox is a circle and the other declinations follow the Limaçon of Pascal.”

Mark used this approach to create his own roof dial made from glass pieces and a hemispherical steel mold.

El Infiernito

Will Grant explored a Muisca Indian Megalithic structure in Colombia with his family at a place known as El Infiernito. “When the Spanish colonizers arrived at the site, in the 16th century, they were so disturbed by what they perceived as pagan symbolism in the phallic-shaped columns that they attempted to destroy the site. (Fig 22) This reaction gave rise to its nickname "El Infiernito" (Little Hell).

Fig. 22 El Infernito's northern row of east-west stones and some of the other monoliths (alignment stones)

Two parallel rows of stone are aligned east-west, with larger "phallic monoliths" bordering the two rows. Will was able to find a Spanish article Surveying and Testing of a Possible Astronomical Solar Observatory of the Muisca Saquenzipa in Villa de Letva-Boycá-Columbia by Vargas, Niño and Romer. They were able to show azimuth alignments for the equinoxes and solstices to be less than one degree off. Bottom line: "Indigenous American communities and people, like those in the rest of the world, neither ignored nor were indifferent to astronomical phenomena."

Ein Blocksonnenuhr Parts I and II – Decoding A 16th Century Woodcut

Frank King at his enthusiastic best, presented a double thriller with one presentation on Saturday and concluding on Sunday. An auction house asked Frank to confirm a 7-dial woodcut was from Albrecht Dürer's workshop circa 1534.

Frank wove a technical story to show what appears to us as a date of 7 July is really the date 1557 and Dürer died in 1528. So, who made the dial?

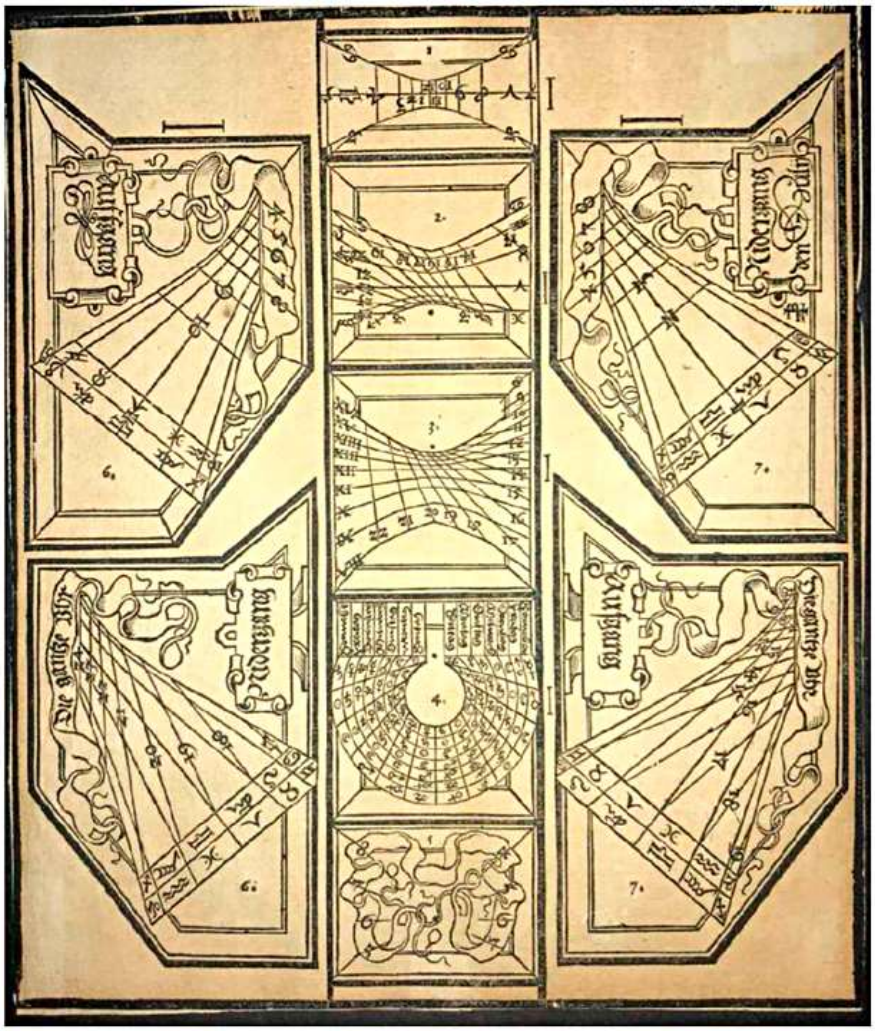


Fig. 23 Seven Dials Mystery

Through serendipity, Frank was asked to comment on *Sieben Sonnenzeiger (Seven Sundials)* by Zacharia Bormen, citizen of Weyland Bürgern, Anno M, DC, XXXIII (1633). The dials in the text were identical to those of the Woodcut. The maker's mark on the

Seven Dials woodcut could now be deciphered: ZBI Zacharia Bornen, Illuminist. In the second presentation Frank focused on the planetary hours (circular symbols at the center of Fig 23), showing how a sundial's hours could be represented by planets (Saturn, Jupiter, Mars, Moon, Venus, Mercury) but by cyclic repetition gave us the days of the week.

A Marriage Made in Heaven: The Ptolemaic System Meets Complex Vectors

Zoon Nguyen, like Russell Goyder, thinks in projections using rotation matrices acting on vectors.

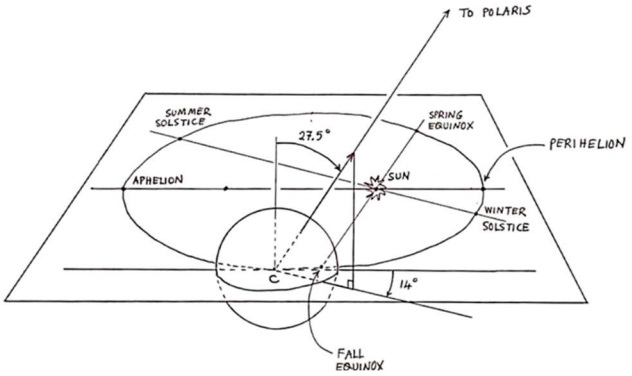


Fig. 24 Heliocentric View of the Earth & Sun

Likewise, Zoon starts with a heliocentric view (Fig. 24), but quickly adopts a topocentric earth view: "Of Copernicus, Martin Luther wrote: 'This fool wishes to reverse the entire science of astronomy; but sacred Scripture tells us that Joshua commanded the Sun to stand still, and not the Earth.'" From this point of view Zoon quickly develops coordinate rotation matrices and develops a table of rotations for horizontal, vertical analemmatic, Foster-Lambert, and inclining/declining sundials. In simple matric algebra, a projection of a style shadow of vector S and be transformed to S' on some observing surface using a series of rotation matrices **R**. For a general example $S' = \mathbf{R}_3\mathbf{R}_2\mathbf{R}_1S$. Of course, the hard part is defining S (how the style is pointed) and each matrix **R** that is packed with 9 elements of 1's, 0's. and sines and cosines.

Projection (matrix) algebra allows compact modules, where the style vector and each rotation matrix "hide" the tedious multiplications.

The Roman Dodecahedron

Fred Sawyer presented the enigma of the 12-sided dodecahedron, each with a different size hole. Thirty-three devices have been found in England and a total of over 130 in ancient Roman sites (1st to 4th century CE).

Fig. 25 Roman Dodecahedron
https://222.etsy.com/listing/688798217

But what was their function? Dozens of theories abound and Fred presents one theory from Sjra Wagemans that explains the various holes as a way of determining the time to plant winter grain. The idea is to use the projection of sunlight from one hole and determine if it goes through the opposite hole during a z-axis rotation of the dodecahedron. Doing this for all pairs and counting the number of "dark" passages where sunlight does not penetrate, allows the adding of the number of days to September 24th giving the date of planting. Well, this is one person's theory. Your can find this at **https://www.romandodecahedron.com/the-hypothesis** and a video at **https://youtu.be/Hy8gVmL3xaA**.

Solar Navigation and Polar Exploration for the Sundial Enthusiast

Tom Kreyche's presentation focused on early explorers of the Arctic and Antarctic, including Scott, Byrd, and Amundsen (Fig. 26), and the difficulty of determining location as one approaches the North or South pole.

The steps a navigator would take on the icy plane when the sky was clear were as follows:

- Take noon sight for latitude
- Take transverse sight (ideally > 60 deg change in sun's azimuth)
- Calculate sun's azimuth and altitude and latitude
- Measure sun's azimuth with magnetic compass
- Difference is the compass variation
- Optionally calculate longitude, important if you want to find supply caches.

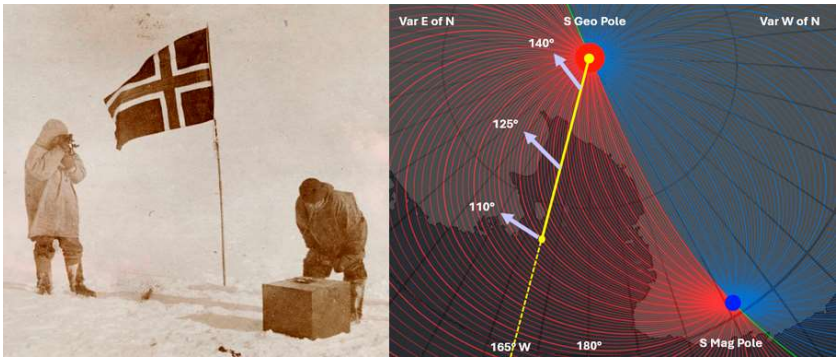
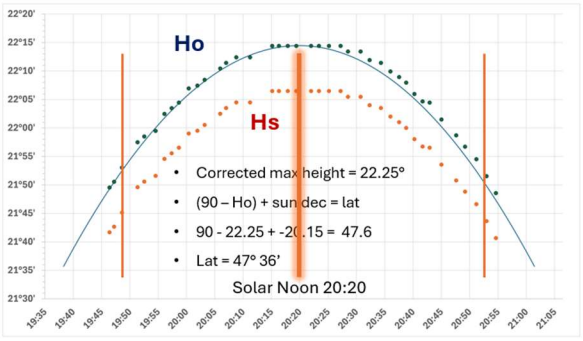


Fig. 26 (Left) 1912 Amundsen South Pole expedition photo; (Right) Changing magnetic variation as they approached the South Pole



Correction	Value
Index Error	0.0
Dip Short*	-5.3'
Sun's Semidiameter*	+16.2'
Refraction (Std)	-2.4'
Refraction (Corr)**	-0.1'
Parallax**	+0.1'
Total	*+8.5'*

** Not used with artificial horizons*
*** Optional*

Fig. 27 Taking a Meridian Sight (Sextant Height Hs), and applying corrections (Ho). Blue line is calculated using the MICA program. Here, the number of observations is greater than normal to demonstrate how to find maximum altitude, latitude, and solar noon

Tom noted that to determine when the sun is on the meridian and determine solar noon a number of observations of altitude must be taken, corrected, and curve fitted. (Fig. 27).

A Vertical-Action Horizontal Foster-Lambert Sundial

Steve Lelievre demonstrated two unique variations of the Foster-Lambert Sundial, where the gnomon is not aligned to the pole, but set for a horizontal F-L dial with inclination A= (φ+90)/2 or for a vertical dial, A= φ/2. In either case, the gnomon must move to accommodate the sun's declination δ. With the size of the hour ring R, the shift of the gnomon for a horizontal F-L sundial is S=R tan(δ)/tan(A). The vertical F-L dial requires S=R tan(δ) tan(A).

"If a horizontal displacement of the hour circle works with a vertical Foster-Lambert…could vertical displacement of the hour circle wrk for a horizontal Foster-Lambert?" Indeed, Steve's innovation using 3D printing is to move the whole chapter ring rather than the gnomon! (Fig. 28).

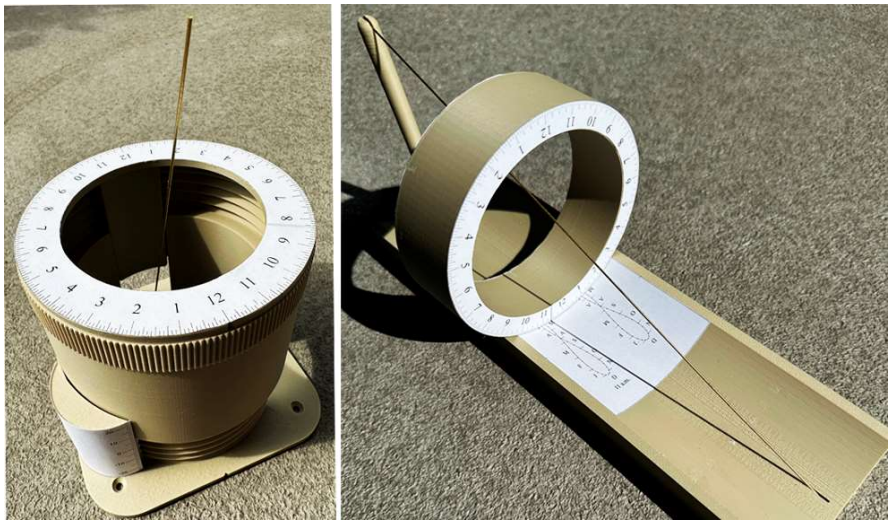


Fig.28 (Left) A Horizontal F_L Dial where the cylinder screws up and down keeping the chapter ring stable. (Right) a Vertical F-L dial that slides forward and back matching using an analemma for Dec & EoT.

A Sundial In the Nan Lian Gardens, Kowloon, China

Once again Geoff Parsons took us on an exotic journey to see a distant sundial. This sundial is located in the 8.6 acre Nan Lian Gardens, created in 2006 in the style of the Tang Dynasty (618-907 CE).

Fig. 29 The sundial is know as "Light of Enlightenment" or "The Gnomonic Fountain" designed Simone Bartoloni

The sundial (also serving as a water fountain) is located in line with the bridge to *The Pavilion of Absolute Perfection*.

The octagonal dial has a unique sundial on 6 of the 8 faces. The north-west face shows a map of China and the time zones, with the central Meridian is 120° east of Greenwich. The north-east face has the Equation of Time, using Chinese symbols of the months used during the Tang Dynasty.

Numb3rs, or How 12,000,000 Viewers Were Introduced to NASS

How could NASS get onto television? Fred Sawyer reviewed what happened some years ago during the popular TV series Numb3rs

(2005-2010). "In 2005 I was contacted by Andy Black, one of the show's researchers. He wanted to know if it was possible to use a shadow in a date/time stamped photo as a poor man's GPS system – using mathematics to locate the site of the photo." Fred of course said "yes." In fact, the math was later presented in a 2011 *Compendium* with an article by Yvon Massé and a 2015 *Compendium* article by Fred on La Hire and Picard. (These articles were provided to conference participants as well as all the Power Point presentations on Flash Drive). But over the last 20 years since the television show, what has changed?

Photos taken with smart phones generally have the latitude and longitude embedded in the image file, taking all the magic out of finding the location. Then Fred reviewed a recent work using the Bellingcat Shadow Finder.

Fig. 30 (Left) Shadow of bush with lake in background. (Right) Given the UTC time and sun angle, the Bellingcat software creates a circle of altitude for the sun at that moment. Using local features (lake, road, building, etc.) Google Earth can help find the exact coordinates.

See the movie:
https://www.youtube.com/watch?v=pQIjDPFgdJA and try the on-line software at:
https://colab.research.google.com/github/Bellingcat/ShadowFinder/blob/main/ShadowFinderColab.ipynb

Fun Experimenting with Model Sundials

Paul Ulbrich enjoys devising experimental sundials out of wood and odd parts to see how the shadows perform (Fig. 31).

Fig. 31 Paul's experiment with a vertical semitransparent North/South Dial with gnomons on both sides.

His dials include equatorials and polar dials with one, two, and three axes of adjustment made of metal or wood. Although Paul hasn't caught the "3D Printing" bug, he uses modern tools such as *Sketch Up* to lay out sundials and uses a laser cutter that cuts or perforates paper, wood, thin metal, and plastic (Fig 32).

Fig. 31 (Left) Sketch Up of a polyhedron dial that Paul ultimately made of wood; (Right) Laser cut face for an equatorial sundial

CONFERENCE DINNER

All conference registrants gathered together on Saturday night to enjoy a good meal and comradery. Conversation was, of course, mostly about sundials…those that had been seen in Ottawa, those that had been built, and future plans for dials yet to be made. (Fig.32)

Fig. 32 (Left & Right) Conference hosts Esther and Mike Moghadam (Background) Bob & Bo Manning, Phil & Fred Sawyer

José Montes gave everyone candy (fig?) from Mexico that was a delicious finish to the meal. Fred Sawyer and Mark Montgomery passed out gift bags to all with chocolates and for the full registrants, two different personalized sundials.

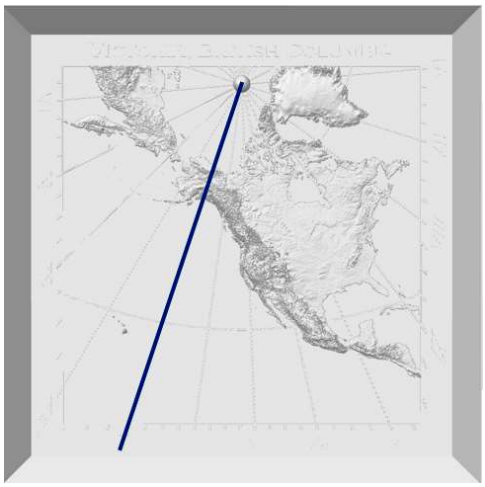


Fig. 33 Steve's 3D printed translucent lithophane sundial

Steve Lelievre 3D printed lithophane vertical sundials (Fig. 33) with a gnomic map projection rotated for each

registrant's longitude and gnomon ingeniously attached for site latitude. Truly a work of art.

Steve also made a nice plastic tray to hold the dial, gnomon wire, post, and mounting fixture. The dial is intended to sit on a south facing window sill, with time read from the north side through the translucent dial. The lithophane feature is the gnomic map created by 3D printing various thicknesses of the PLA plastic.

Bob Kellogg 3D printed vertical Habermel sundials based on the mathematics developed by Fred Sawyer on solar decliners in a *Compendium* article from March 2020.

The 3D printed Habermel dial has circular declination lines and nearly straight hour lines set by the user's latitude. A small, horizontal gnomon completes the dial. Bob used a bronze plastic filament, black lines and red printing (Fig. 34).

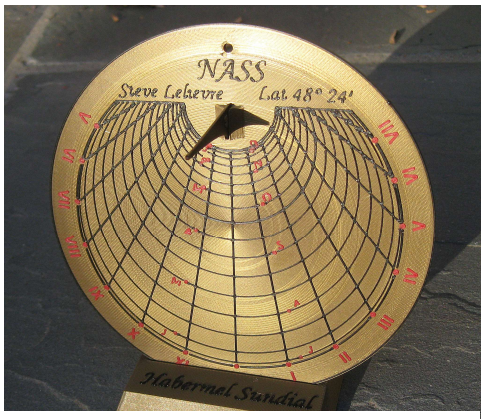


Fig. 34 Habermel dial made for Steve Lelievre at his latitude in

SAWYER DIALING PRIZE

This year the Sawyer Dialing Prize of a certificate, $250 USD and a Spectra glass sundial from Artisan Industries was awarded to Simon Wheaton Smith. You can find his inspirational sundial website at **https://www.illustratingshadows.com/**

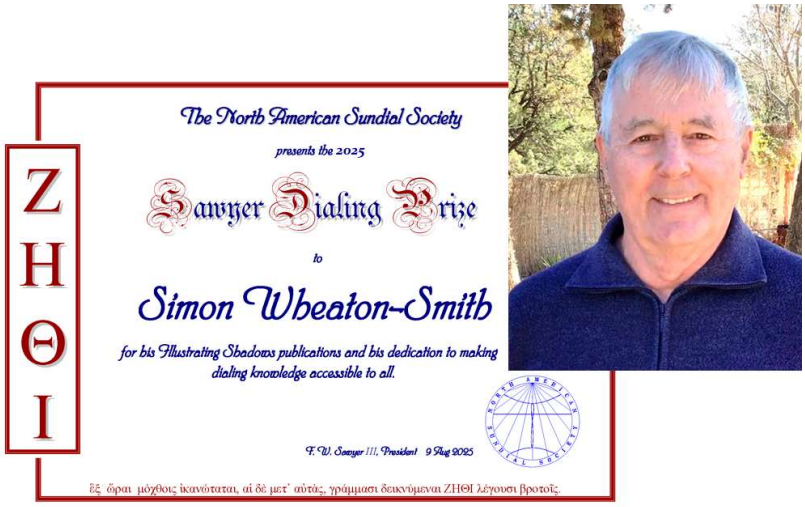


Fig. 35 2025 Sawyer Dialing Prize Certificate to Simon Wheaton-Smith

Fig. 36 Simon with Spectra Sundial and Certificate

The certificate notes Simon's accomplishments for his *Illustrating Shadows* publications and dedication to making dialing knowledge accessible to all.

His *Illustrating Shadows* website has multiple methods of creating dials, teaching aids, useful tools, software, and CAD scripts.. In all, *Illustrating Shadows* contains 1,174 pages of sundialing knowledge.

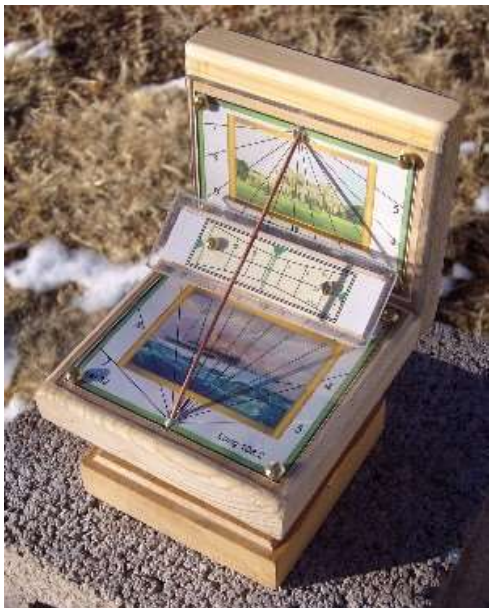


Fig. 37 Simon's Diptych Sundial

ANNUAL GENERAL MEETING

As required, the annual general meeting (AGM) of NASS was held starting Sunday morning at 7:53 AM. Minutes were taken and the society is in good financial health with assets of $64,362.48 as of June 2025. Membership accounts for 69.5% of membership and *Compendium* printing and distribution takes 69.5% of NASS expenses. *The Compendium* averages 8 articles per issue

As of June 2025, NASS has 234 members. This past year 22 members have lapsed and we have gained 23 new members. The NASS website receives approximately 1.3M hits per month, displays 400 articles and currently lists 1127 sundials.

The nominating committee presented Bob Kellogg and Steve Lelievre to continue filling the offices of Vice President and Secretary, respectively for 2025-2027. With no other nominations received by July 1st, the committee declared the election final.