



Focal Point



April, 2011



Edward A. Halbach 1909-2011

MAS founding member Edward A. Halbach, passed away at age 101 within minutes of the Vernal Equinox on March 20, 2011.

Obituary is on page 6.

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April 15th: Membership Meeting at MAS Observatory

The next General Membership Meeting is going to be held on April 15th, at 8:00PM at the MAS Observatory. Dr. Paul M. Rybski, Associate Professor at the Department of Physics, and Director of the Whitewater Observatory at the UW-Whitewater is going to present a lecture. See the abstract below.



Kitt Peak National Observatory

The Half-Degree Imager for the WIYN 0.9 Meter Telescope

"The WIYN 0.9 Meter Telescope Consortium was formed in 2000 to renovate, fund and operate a Boller and Chivens 0.9 meter aperture $f/7.5$ Ritchie-Cretien Cassegrain reflecting telescope installed at Kitt Peak National Observatory. The B&C control system was removed and replaced with a servo-driven system that permits computer-based pointing and tracking. Telescope operation under WIYN Consortium management began in Winter 2002.

Since 2002, only two instruments have been used on the telescope: S2KB, a CCD camera with an on-sky resolution of 0.594×0.594 arcseconds, a 20.3×20.3 arcminutes field of view and a 20 [Kilopixel/sec] readout rate; and MOSAIC, an eight-CCD camera with an on-sky resolution of 0.43×0.43 arcseconds, a one square degree field of view and a 250 [Kilopixel] readout rate per CCD. Because MOSAIC has been in very high demand at other Kitt Peak telescopes and because its eight CCD's have sky coverage gaps that must be filled with extra observing time and that complicate data reduction, Indiana University astronomers wrote a \$300,000 NSF grant to build a single-chip CCD system with MOSAIC resolution, a 29.0×29.0 arcminutes field of view and a readout rate of 500 [Kilopixel/sec].

In this talk, I will review the specifications for the HDI detector system, now under construction at the University of Hawaii, and discuss how this higher-resolution and faster system will greatly improve the way science is done on the WIYN 0.9 meter telescope."

Treasurer's Report

The Society has received a donation from Richard Randall from Los Angeles. This and a number of new and renewing memberships helped to generate a positive cash flow for the month of March. A number of the board have taken to calling members who have not renewed their membership from last year in the hopes of getting a few of them to renew.

The checking account balance as of March 14th is \$4,890.85. The Albrecht fund is \$7,886.84.

Respectfully Submitted,
Neil Simmons, Treasurer

Notice of Membership Dues Increase

As we have already announced, in February the Board of Directors passed a resolution recommending that the dues be increased to cover increases in the operating expenses of the society. The recommendation is to raise dues by \$10 for each membership class. The resolution will be put forth to the members at the May meeting - currently scheduled for the 20th. There the membership can approve, modify or reject the recommendation. Membership dues were last increased in 2008 when we also faced a cash flow crisis.

Proposed yearly membership dues are the following:

Membership Type	Individual	Family	Student
Resident*	\$46.00	\$52.00	\$23.00
Non-Resident	\$33.00	\$37.00	\$23.00

*Residents of Milwaukee and surrounding Counties

Article IV, Section 4 of the MAS By-laws states that, "Dues may be changed only by majority vote at a membership meeting with at least one (1) month notice." A motion to increase the yearly membership dues will be made at the May 2011 membership meeting.

Membership Meeting Minutes

Held on March 25th at Manfred Olson Planetarium, at UWM.

The meeting was called to order at 8:00 PM by Vice President, Brian Ganiere

Minutes of the February 18th General Meeting were read and approved.

The **Treasurer's Report** was given by Treasurer, Neil Simmons. Copy attached.

The **Observatory Director's Report** was given by Director, Gerry Samolyk. He mentioned that remote focusers need repair on both LX 200's. Also, the Z-scope drive is not working reliably. Because of the snow now being melted, caution should be used regarding driving on the hill and it should only be done when absolutely necessary.

Gerry announced that Edward Halbach, a significant founding member of MAS, passed away on March 20th, shortly before his 102nd birthday. An article about him will be written up for our newsletter. The funeral will be on Monday in the Twin Cities area.

Old Business - Brian announced that the unexpired term for Virgil Tangney's Board position still needs to be filled. If interested, talk to Brian or another Board member. May elections are coming up and four Board positions are up for election. Brian emphasized that the position of MAS President has been vacant this past year and needs to be filled.

New Business - Steve Diesso mentioned that a sign-up sheet for Public Nights will be available. Volunteers in all areas are needed, including helping in the parking lot and showing objects to visitors through telescopes. We are in need of a coordinator for the upcoming April 8th Public Night.

Russell Chabot mentioned that we will be needing to coordinate a work party to clean up the parking lot before Public Nights begin.

Correspondence - Brian mentioned that Paul Rybski of Whitewater will be donating an astronomy book to MAS.

The Program was a Planetarium show presented by Dr. Jean Creighton, Manfred Olson Planetarium Director, on Northern Lights and Constellation Mythology.

Our first Public Night will be on April 8th and Our next General Membership Meeting will be on April 22nd, both to be held at the MAS observatory.

The meeting was adjourned at 9:20 PM

Respectfully Submitted,

Lana Silke, Secretary

Announcements

MAS Survey

We want to hear from you! Are you interested in the MAS providing classes in astronomy? To take the short survey, point your web browser at

<http://www.surveymonkey.com/s/FYLK7JW>.

by Russell Chabot and Neil Simmons

Adopt a Telescope

As we already announced in the February and March issues we would like to make the buildings and domes of the MAS Observatory more organized and clean to keep our instruments in better shape.

As you can see in a sign-up sheet on page 9, there are still open spots, moreover each telescope could be adopted by multiple persons.

If you made up your mind please let me know in person, by phone (414-559-3502) or by email: ahynes@wi.rr.com.

by Russell Chabot
Observatory Committee Chair

Public Observing Nights

The second public observing night is scheduled for May 6th at 7:30PM at the MAS Observatory. Topic: **the Eta Aquarid Meteors**. The kind help of MAS members during the night is encouraged and highly

2011 Public Observing Nights	
April 8	The Moon
May 6	Eta Aquarid Meteors
May 27	Saturn's Rings
June 24	The Sun & Sunspots
August 19	The Milky Way Galaxy
September 23	Galaxies
October 14	The Fall Constellations

The first Public Observing Night was held with the good turnout (40-45 persons) despite the cloudy sky. Brian gave a presentation about the Moon. Fortunately the guests were able to observe through openings in the clouds. We collected \$60 from parking fee (\$5/car) for the MAS .

Events

Boy Scouts at the MAS

On March 14th, 24 Cub scouts come up to the hill with their parents for some observing of the moon, Jupiter and the Great Orion Nebula if the weather cooperated. Paul Borchardt, Tim Burrus and Dan Yanko were the hosts. Paul Borchardt gave a short lecture about the Moon to the scouts and then they went outside to observe. We had cloudy skies but we were able to observe the moon through the clouds.

Tim Burrus opened the Z Dome and observed the 1st quarter Moon with the 25 inch telescope. I opened up the Obsession 18 inch scope. We observed many



moon features before the kids were too cold to observe anymore. A fun time was had by all. Thanks to Paul and Tim for giving a private tour to the Cub Scouts Pack 41 Den 6 from the Ronald Reagan School. We collected about \$50 for the MAS Treasury.

by Dan Yanko

Preparing the Observatory for the Public Observing Nights

On Saturday, March 26 Gerry and I spent much of the day at the Observatory cutting evergreen trees and brush and burning them. The work continued on Saturday, April 2. Tamas Kriska, Agnes Keszler, Gerry Samolyk, Sue Timlin, Brian Ganiere, Jim Drzewiecki, and myself spent much of the day getting the Observatory ready for the Public Observing Night on April 8th. Jim cleaned the bathrooms & helped in the parking lot. Sue cleaned the 18" scope and trimmed the bushes at the north end of that and the 10.5" scopes. Tamas & Agnes cleaned Z dome and the entry way downstairs. Brian & Gerry & I cleared more brushes in the parking lot.

The parking lot needs further bush trimming and the other observatories need to be cleaned. I will be asking for more volunteers to get other projects done during the year.

by Russell Chabot

Member's Stories

"How I Got Started in Astronomy"

I got started in astronomy when my family moved to Brookfield, Wisconsin in 1957. Back in those days, there were fewer street lights in that area, so the night sky was very dark and you could really see lots of stars. I remember the excitement of being outside with my dad and older brother, waiting for Sputnik to fly overhead. My dad even took pictures of it that we still have today. In grade school, I had a wonderful science teacher named Mr. Wayne Michealson. Mr. Michealson actually arranged for our class to visit a planetarium and then an observatory, where I was able to look through a telescope for the first time. My older brother Dan also had a small, 3 inch reflecting telescope, so he and I would occasionally spend nights out in the back yard looking at the moon, or searching for planets, clusters, or galaxies. As time went on, my dad noticed that my brother and I had become very interested in the stars, so he started taking us to the Milwaukee Astronomical Society's Observatory. Eventually, I began reading books about space and heading outside with my dad's binoculars to find objects on my own in the night sky.

I fondly remember visiting my Grandmother in Texas. She lived near a very small town, where the skies were so dark that one you were dark-adapted, you could actually read a book by star light! She was also very interested in studying the stars, and passed that interest on to me. Actually, our other Grandma, who lived here in Wisconsin, was also interested in sky-watching. Back in the 1980's, I remember taking her to the farm where she was born and grew up, near Lake Five. When it got dark out, she could name just about every star in the sky, and the constellations that those brightest stars were in. It was amazing, that even



Photo taken at Lake Five

at 90 years of age, she still enjoyed sky-watching with us. To this day, I think about those special times with her and the inspiration she gave me to study astronomy and continue my own star gazing. As an adult, I decided to join the Wehr Astronomy Society, to meet people and learn even more about astronomy.

In 1988, my older brother took me to Hawaii for three weeks. While we were in Maui, we met a guy who gave astronomy talks at the Hyatt Hotel. He allowed us to take his beautiful Celestron C-8 telescope to the mountains for an all-night

observing session. It was fantastic to see both the northern and the southern sky from one place! This event really fueled my interest in astronomy. When we got home, I went out and bought my own Celestron C-8 telescope. I started going the Milwaukee Astronomical Society's open houses at the New Berlin Observatory. There, I met Lana Silke, who also had a C-8 telescope. She showed me how to find fainter objects in the sky

and explained in amazing detail what I was looking at. I spent time talking other members, sky-watching with them and sharing their stories. I eventually joined the club in 1989. Today I enjoy helping MAS Observatory visitors find objects that they are searching for in the night sky. I also enjoy sky-watching and meeting people at the Horwitz Planetarium shows and Retzer Nature Center events. Perhaps you will see me the next time you visit, outside helping folks view the sun through my solar telescope, or in the parking lot, showing visitors the stars after a planetarium show. I figure, the best way to learn, is to come to a planetarium show, or to attend a local sky-watch. Perhaps you may have fond memories about how you first became interested in astronomy. Please say hello, if you do see me out there, I would like to hear your story.

by Tim Burrus
member of the Board of Directors

In the Astronomical News

Mercury: the Key to Terrestrial Planet Evolution

Mercury, Venus, Earth, and Mars are the terrestrial planets of our Solar System. Among these, Mercury, also called iron planet, because of its huge iron rich core, is an extreme: the smallest, the densest, the one with the oldest surface, the one with the largest daily variations in surface temperature (from 90 to 700 K), and the least explored. The first space probe to flyby Mercury was Mariner 10 in 1975. Mariner 10 provided the first detailed data of Mercury, mapping 40-45% of the surface.

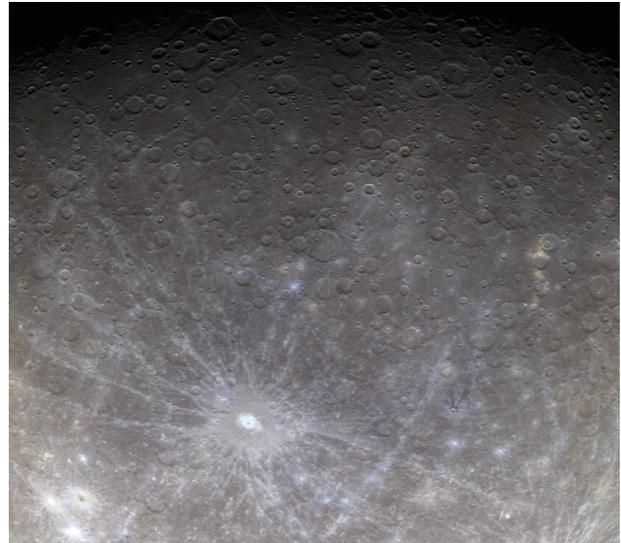
The MESSENGER (**ME**rcury **S**urface, **S**pace **EN**vironment, **GE**ochemistry and **R**anging) probe was launched by NASA on August 3, 2004 at the Cape Canaveral Air Force Station in Florida. The acronym MESSENGER was chosen because Mercury was the messenger of the gods according to Roman mythology. It became the second mission to reach Mercury successfully.

Traveling to Mercury required multiple, consecutive gravity assist 'swingby' maneuvers around Venus and Mercury, in combination with minor propulsive trajectory corrections, to gradually slow the spacecraft. The multi-flyby process greatly reduced the amount of propellant necessary to slow the spacecraft, but at the cost of prolonging the trip by many years and to a total distance of 4.9 billion miles. To further minimize the amount of carried fuel, the spacecraft orbital insertion targeted a highly elliptical orbit around Mercury.

The primary science objectives of the mission include:

- determine accurately the surface composition of Mercury
- characterize the geological history of the planet
- determine the precise strength of the magnetic field
- investigate the presence of a liquid outer core by measuring Mercury's libration
- determine the nature of the radar reflective materials at Mercury's poles
- investigate the important volatile species and their sources and sinks on and near Mercury.

On March 17, 2011 MESSENGER became the **first spacecraft ever** to enter Mercury's orbit,



Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington

and on April 4, 2011 it began its yearlong science campaign by sending the first images taken from the orbit. The spacecraft will fly around Mercury 700 times over the next 12 months, and its instruments will perform the first complete reconnaissance of the cratered planet's geochemistry, geophysics, geological history, atmosphere, magnetosphere, and plasma environment. MESSENGER's 12-month orbital phase covers two Mercury solar days (one Mercury solar day, from sunrise to sunrise, is equal to 176 Earth days). This means that the spacecraft can view a given spot on the surface under given lighting conditions only twice during the mission, six months apart, making available observation time a precious resource. MESSENGER orbits Mercury twice every Earth day. Once a day, the spacecraft will stop making measurements and turn its antenna toward Earth for eight hours to send data back – via the Deep Space Network – to the MESSENGER Mission Operations Center at the Johns Hopkins University Applied Physics Laboratory, where it was designed and built. You can follow MESSENGER's journey in its orbit about Mercury with the newly revised ["Where Is MESSENGER?"](#) website feature, which offers simulated views of the spacecraft's current orbit and what Mercury looks like from MESSENGER's current perspective.

Edward A. Halbach 1909 - 2011

On March 20, our longest-term member passed away just short of his 102nd birthday. Ed Halbach is the most significant member in the history of the Milwaukee Astronomical Society. In fact, Ed was one of the most significant amateur astronomers of the twentieth century.

When Ed Halbach graduated from college and began his engineering career, he looked for an activity to occupy his free time. He felt that most hobbies were way too passive, however in 1932, Ed saw an advertisement in the Milwaukee Journal announcing the formation of an astronomical society. Here Ed found an activity where could channel his energy.



Ed started observing variable stars using the old blueprint charts (see photo) and a 13" reflector located in the backyard of MAS founder Lavern Armfield. Ed would continue to observe variables for the next 70 years, making about 100,000 visual observations. The society was also active in observations of meteors during that time.

In 1936, construction of the MAS observatory began in New Berlin. Ed would play a key role

in this project. At the height of the depression there was little money available, so the members passed a hat and managed to collect \$100 that was used to purchase some used lumber. One of Ed's many talents was the ability to obtain donated material for observatory construction projects (as he used to say "you need to know how to scrounge"). Concrete for the pier and steel for the dome were obtained.

In 1942, Ed took on the job of observatory director, a position he would hold for the next 35 years. During the Second World War, Ed ran an optics shop in the 'monastery' building to produce prisms for bombsights. This qualified MAS members for extra gas-ration coupons for observatory access, however observatory use was down significantly during the war.

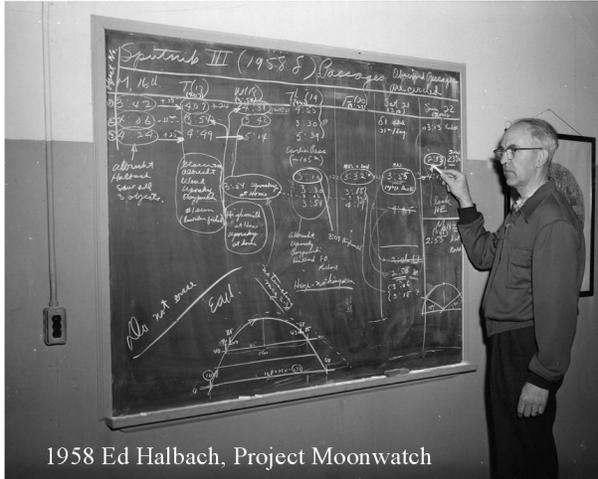
In 1947, Ed was involved in the formation of the Astronomical League and served as the first president of that organization.

Ed married Jane Roth in 1942. They enjoyed 65 years together before Jane passed away in 2007. Despite all of Ed's astronomical activities, he always found time for his family. He designed and built a camping trailer so he could take Jane and their six children on cross country trips.

During the 1940's, amateurs became involved in studying the relationship between solar events, aurora, and the magnetic field of the Earth. By comparing observations of solar flares, aurora, and ground currents, Ed was able to predict interruptions in power and communications caused by solar events. This work enabled power companies to prevent interruptions of this type. The MAS was part of a network of astronomers coordinating observations of these phenomena. Cornelius Prinslow, Bill Albrecht, and Ed Halbach, of the MAS were featured in a 1949 issue of National Geographic article on the subject.

In the late 1940's and 50's, Ed became involved in an Air Force project using solar eclipse timings to link the North American datum with the coordinate grids of other continents. This work took him on eclipse expeditions all over the world. The result of much of this work has remained classified to this day.

With the dawn of the space age, the Smithsonian Astrophysical Observatory recruited amateur astronomers to help with tracking satellites in a project called Moonwatch. Ed got the MAS involved and modified the 'monastery'



1958 Ed Halbach, Project Moonwatch

building at the MAS observatory with a pier and slide off roof to house three satellite tracking scopes. (The building then became known as the satellite shed). As a result of this work, the MAS predicted and observed the reentry of Sputnik IV in 1962.

Observations of lunar occultations had been going on for a decades, but it wasn't until the mid 1960's that computers became fast enough to accurately predict lunar grazing occultations. Ed got involved with this program at the start. In the process he designed and oversaw the construction of a two mile cable and chart recorder system to facilitate easy recording of these observations. In the early 1970's he led a project to design the 10" portascopes. This allowed us to bring larger aperture scopes to these events. These scopes were also heavily used in the observation of eclipsing binary and RR Lyr stars from the 1970's thru the 2000's. Ed received the Astronomical League Peltier award for his work in lunar occultations.

In 1977, Ed and Jane decided to retire and move to Estes Park CO. The house that Ed had designed included a rooftop observatory with a 16" cassegrain scope on a modified Springfield mount. He would spend much of his retirement working on this project (Ed always needed to have a project to tinker with). While working on this scope, Ed used a portable 10" scope in his backyard to continue his occultation and variable star observing.

In addition to Ed's observing, Ed and Jane enjoyed extensive world travel during their retirement. Ed also did volunteer work with Habitat for Humanity. He continued this work until he was well into his 90's.

There are many facets to Ed's legacy. His engineering talent and creativity was at the genius level. He could find an economical solution to almost any problem. His innovations kept the MAS observatory thriving thru the depression and a world war. He designed and crafted the drives and setting circles on both A and B scopes that are still in use today. Those domes continue to function after decades of use.

Ed always looked for opportunities for amateurs to contribute to the science of astronomy and related fields. His energy and enthusiasm was contagious. In 1988, Ed had also received the AAVSO merit award for his long service to that organization.

A significant part of Ed Halbach's legacy was his role as a mentor to other observers. In 1933, Ed met a high school student named Bill Albrecht. Ed took Bill under his wing and it was the start of a close friendship that has lasted for over ¾ century. Over the decades that followed, several generations of observers as well as a few



professional astronomers were mentored by Ed. At the 2003 spring meeting of the AAVSO, Ed received the William Tyler Olcott award in acknowledgment of this effort. At the same meeting, Jane was credited for "putting up with Ed" during more than 60 years of marriage.

I was in high school student when I first met Ed Halbach. As a young member of the Milwaukee Astronomical Society, I quickly got involved in observatory construction projects. One of the first observing projects Ed got me involved in was grazing Lunar occultations, chasing moon shadows all over Wisconsin and northern Illinois. One night Ed gave me my first experience with variable stars. As he was showing how to observe long period stars, I asked him how many he observed per hour. He told me that he normally observed about 15 stars per hour but when he had "help" from people like me he got about four. He was always interested in getting new observes started.

Finally in 1974 came a night that impacted my life. Ed came out to the MAS observatory with a

copy of the AAVSO Circular. He said "There's an article in here about something call, eclipsing binary stars. Let's see what we can do with them". I have been observing EB stars ever since.

In 1980 I took over Ed's old position as observatory director for the MAS. Throughout Ed's retirement we maintained a close friendship and continued to swap information about observing projects. The MAS site always was a special place for both of us; in 2003 Ed made his last visit. I gave him a tour of the new observatories that had been built. He was impressed with the designs of the new sheds and the CCD equipment. It showed how much observing has changed in a single human lifetime.

by Gerry Samolyk
Observatory Director

This article was also submitted for publication in the Journal of the AAVSO.

Adopt a Telescope Program - Signup Sheet

	Adoptee	Scope	Location
1	Sue Timlin	18" F/4.5 Obsession	D Shed
2	Neil Simmons	12.5" F/7.4 Buckstaff	B Dome
3		12.5" F/9 Armfield	A Dome
4	Dan Yanko	10" F/6 Newtonian	Albrecht Observatory
5	Tamas Kriska	25" F/15 Zemlock	Z Dome
6	Henry Gerner	12" LX 200	Tagney Observatory
7		14" Z-Two scope	Z-Two Observatory
8		10" LX 200	Tagney Two (T-Two) Observatory

At Your Service

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Lana Silke	262-966-4929
Neil Simmons	262-889-2039
Sue Timlin	414-460-4886
Dan Yanko	262-255-3482

April/May Key Holders

4/16	Neil Simmons	262-889-2039
4/23	Dan Yanko	262-255-3282
4/30	Paul Borchardt	262-781-0169
5/7	Tim Burrus	262-369-1022
5/14	Steve Diesso	262-641-0331



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