

THE INSIDE ORBIT VOLUME 46, ISSUE 3

December 2011—February 2012

THE QUARTERLY NEWSLETTER OF
THE GRAND RAPIDS AMATEUR
ASTRONOMICAL ASSOCIATION

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"The dark of winter wraps around us tight.

The lamps are fired, and flickering light

beats time to the fiddle as notes float softly down, like the years' first snow.

While outside the window a blast of late December wind whistles harmony to the drone of the pipes."

Reflections On a Scottish Christmas by Johnny Cunningham

All too soon the season of shirt-sleeve observing gives way to hats and gloves but the amateur astronomer is rewarded for this sacrifice of numbed toes with the exceptional clarity and inky darkness that is the night sky in Winter. Many of us

will take this time to catch up on backlogs of astronomical reading and perusing catalogs of must-have gadgets for the coming year. But some, drawn by the lure of the Pleiades and The Orion Nebula, will venture out on crunchy snow or sit in the chilled and darkened observatory to connect with these long time winter visitors. So turn up the heat and enjoy a steaming mug of Glögg while you enjoy this edition of the Inside Orbit.



Preparing the Winter Yule Log

The GRAAA is a 501(C3) non-profit educational and scientific organization dedicated to advancing the study of astronomy and promoting astronomy and science education to the community.

GRAAA ACTIVITIES FOR DECEMBER 2011—FEBRUARY 2012

January Monthly meeting "Cassini at Saturn " presented by Ken Bertin, Warren Astronomical Society Jim Marron's Tribute to the late Ray Larsen	Schuler Books and Music, 2660 28 th St, SE Jan. 21st 7:00pm.
Telescopes	Schuler Books and Music, 2660 28 th St, SE TBA

ASTRONOMY & SPACE NEWS

Jupiter moon Europa 'has shallow lakes'

Scientists have found the best evidence yet for water just beneath the surface of Jupiter's icy moon, Europa. Analysis of the moon's surface suggests plumes of warmer water well up beneath its icy shell, melting and fracturing the outer layers. The results, [published in the journal Nature](#), predict that small lakes exist only 3km below the crust. Any liquid water could represent a potential habitat for life. From models of magnetic forces, and images of its surface, scientists have long suspected that a giant ocean, roughly 160km (100 miles) deep, lies somewhere between 10-30km beneath the ice crust.

Many astrobiologists have dreamed of following in the footsteps of Arthur C Clarke's fictional character David Bowman, who, in the novel *Odyssey Two*, discovers aquatic life-forms in the deep European sea. But punching holes through the moon's thick, icy outer layers has always seemed untenable. The discovery of shallow liquid water by an American team makes a space mission to recover water from the moon much more plausible.

Shallow seas

The presence of shallow lakes also means that surface waters are probably vigorously mixing with deeper water.

The icy eddies could transfer nutrients between the surface water and the ocean's depths. "That could make Europa and its ocean more habitable," said lead author Britney Schmidt from the University of Texas at Austin, US, who analysed images collect by the Galileo spacecraft launched in 1989.

Glaciologists have been studying the surface of Europa for many years, trying to work out what formed its scarred, fractured surface. By looking at Antarctica, where we see similar [features] - glaciers, ice shelves - we can infer something about the processes that are happening on Europa, said glaciologist Martin Siegert from the University of Edinburgh. He explained that the new study tells us how upwelling of warmer water causes melting of surface ice, forming cracks. "You get

freezing [water] between the cracks... so you end up with the existing ice cemented in with new ice. The underside then freezes again, which causes the uplifting; its pretty neat," Dr Siegert told BBC News.

The US and Europe are working on missions to Europa, and Jupiter's other moons, which they hope to launch either late this decade or early in the 2020s.

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<<http://www.bbc.co.uk/news/science-environment-15754786>>

Kepler 22-b: Earth-like planet confirmed



Astronomers have confirmed the existence of an Earth-like planet in the "habitable zone" around a star not unlike our own.

The planet, Kepler 22-b, lies about 600 light-years away and is about 2.4 times the size of Earth, and has a temperature of about 22C.

It is the closest confirmed planet yet to one like ours - an "Earth 2.0".

However, the team does not yet know if Kepler 22-b is made mostly of rock, gas or liquid.

During [the conference at which the result was announced](#), the Kepler team also said that it had spotted some 1,094 new candidate planets - nearly doubling the telescope's haul of potential far-flung worlds.

Kepler 22-b was one of 54 exoplanet candidates in habitable zones reported by the Kepler team in February, and is

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ASTRONOMY & SPACE NEWS

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just the first to be formally confirmed using other telescopes.

More of these "Earth 2.0" candidates are likely to be confirmed in the near future, though a redefinition of the habitable zone's boundaries has brought that number down to 48. Ten of those are Earth-sized.

'Superb opportunity'

The Kepler space telescope was designed to look at a fixed swathe of the night sky, staring intently at about 150,000 stars. The telescope is sensitive enough to see when a planet passes in front of its host star, dimming the star's light by a minuscule amount.

Kepler identifies these slight changes in starlight as candidate planets, which are then confirmed by further observations by Kepler and other telescopes in orbit and on Earth.

Kepler 22-b lies 15% closer to its sun than the Earth is to our Sun, and its year takes about 290 days. However, the planet's host star puts out about 25% less light, keeping the planet at its balmy temperature that would support the existence of liquid water.

The Kepler team had to wait for three passes of the planet before upping its status from "candidate" to "confirmed".

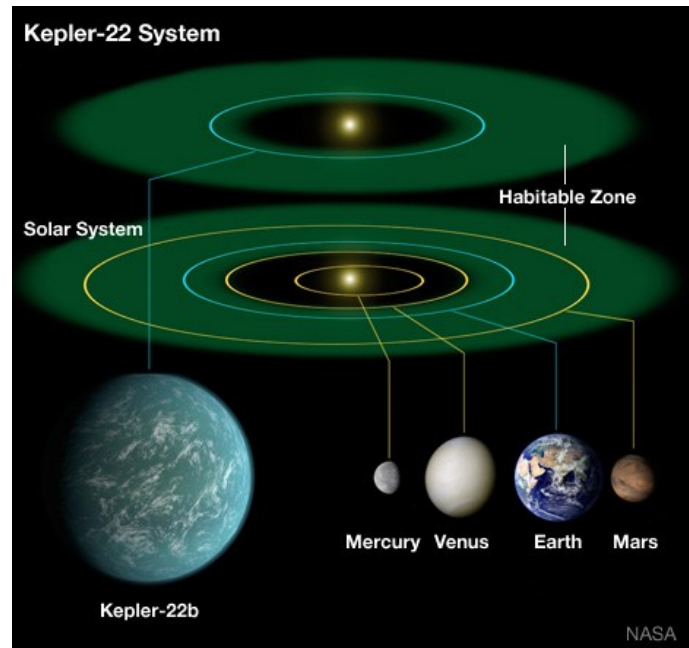
"Fortune smiled upon us with the detection of this planet," said William Borucki, Kepler principal investigator at Nasa's Ames Research Center.

"The first transit was captured just three days after we declared the spacecraft operationally ready. We witnessed the defining third transit over the 2010 holiday season."

The results were announced at the Kepler telescope's first science conference, alongside the staggering number of new candidate planets. The total number of candidates spotted by the telescope is now 2,326 - of which 207 are approximately Earth-sized.

In total, the results suggest that planets ranging from Earth-sized to about four times Earth's size - so-called "super-Earths" - may be more common than previously thought.

As candidates for planets similar to Earth are confirmed, the Search for Extraterrestrial Intelligence (Seti) has a narrower focus for its ongoing hunt.



"This is a superb opportunity for Seti observations," said Jill Tarter, the director of the Center for Seti Research at the Seti Institute.

"For the first time, we can point our telescopes at stars, and know that those stars actually host planetary systems - including at least one that begins to approximate an Earth analogue in the habitable zone around its host star.

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<http://www.bbc.co.uk/news/science-environment-16040655>
[CXXCVV](#)

ASTRONOMY & SPACE NEWS

Kalamazoo Astronomical Society Hosts Talk By Author and Editor Terrence Dickensen

The KAS recently celebrated their 75th anniversary with a gathering at the Kalamazoo Area Math and Science Center. A highlight of the evening was a talk given by '*Nightwatch*' author Terrence Dickensen. Follow this link to download the KAS newsletter 'Prime Focus' which details his talk. <http://www.kasonline.org/primefocus/PF1211.pdf>

And congratulations to The Kalamazoo Astronomical Society for 75 years of bringing astronomy to southwest Michigan.



'The Bay' © Alex Cherney 2009-2011

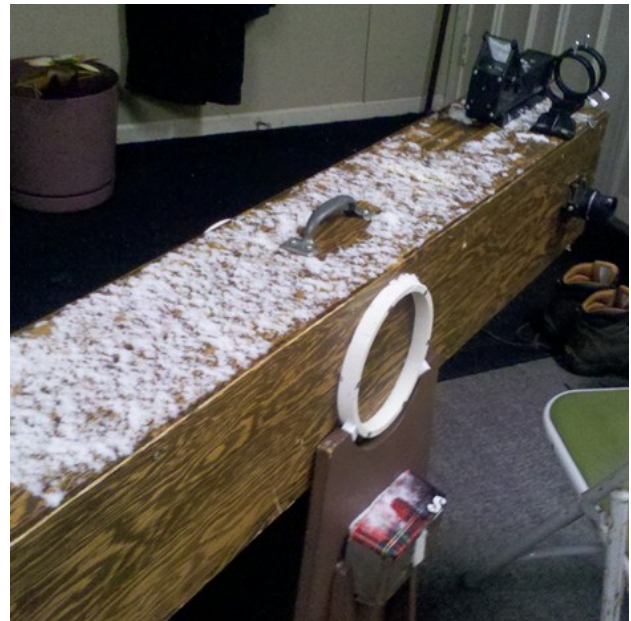
<http://www.terrastro.com/galleries/?album=2&gallery=8>

ACTIVITIES AT THE VEEN

JAMES FOERCH

Last observing session of 2011.

The Scoutcraft Fellowship troop of boys and dads from Grand Haven traipsed up the hill to the Veen Observatory the evening of Thursday, November 10, in occasional snow showers. Jim Foerch set up his six inch Dob, deployed the Hawkins and synced the Borr on Jupiter in through gaps and sucker holes in the clouds. Miraculously the scouts had ample opportunity to observe the moon, Jupiter with its north and south equatorial belts and Galilean moons, the stars of the summer triangle and even "something special": Albireo. But at the end of the evening, they had to admit the observing season was over.

**Imaging Roundtable Announcement**

We all are aware that in West Michigan, as far as astronomy is concerned, the months of November through February are for adjustment, repair, planning, purchase, preparation, processing, reading, learning, and just plain dreaming. Well, until the skies clear a bit, a few GRAAA members are holding some informal get-togethers in a give-and-take, teach-and-learn format to share knowledge and information about all types of astronomical imaging. These sessions will not be lectures, unless the group wants to use that format on occasion. They will be more in the roundtable discussion format. The sessions will be open to all GRAAA members and friends.

Topics that we hope to address are:

- Equipment
- Software
- Types of objects to be imaged
- Image acquisition
- Image processing
- How to use the observatory equipment for imaging
- Anything else the group wants to discuss

We hope to help the time pass more quickly until we can again see the night sky, and also learn something from each other in the process.

Please watch your email inbox for announcements.

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RAYMOND B. LARSON, REQUIEM AETERNUM

GARY ROSS

On Friday, 30th of September I sat in a funeral home in White Cloud wearing a Kalinowski button of honour as minister-with-portfolio from the Warren Astronomical Society. In April it was John Francis Szymanski and in September it was Ray. Astro-blokes from the 1960s are starting to go pretty fast. Why this is of any interest to W.A.S. members will presently be seen.

Ray was a real man, an attractive figure to someone in his 'teens: long-haul truck driver like out of central casting, veteran of New Guinea who nearly was killed in an airplane and saw real combat slaughter, cigar smoker, patently masculine. Per contra he looked deceptively young, almost boyish, and an impishness to strengthen the impression. Married but childless with no prospects, he was fatherly with very young men and understood them, a sub-set of his gregariousness. One was struck from the first by his intellectual curiosity. Much later would come a realization of his sense of art as a painter. When he took to astronomy in the 1950s and joined the Grand Rapids Association it was serious business. He not only helped design the future Veen Observatory, Ray was literally "in the trenches." It was my great honor to have slung dirt with him in the spring of 1966. He built the grinding machine for the 12.5 inch Newtonian mirror and manned the thing during rough and fine grinding. Ray would be aghast, naturally, but he was Mao Tse-Tung's "Every student a worker. Every worker a student."

He was an Idea Man but beyond coffee-house intellectual. Ray had some night school courses in architectural drawing, yet thought of the night sky fired him and he wanted to bolt things together to get at it, not the sort who shows up in golf pants "just to see what's doin'." Any operation with big dreams needs a Raymond B. Larson or, better yet, two. From some nuttiness in which he was not at fault, the man was a historical figure by Observatory dedication at Summer Solstice, 1970.

The reflector which he helped build has been refitted, bearing his name on brass at the Wessling Observatory in Newaygo County. Ray watched us that brilliant October evening six years ago as we mounted it and celebrated first light.

The day after his funeral, 1st of October, I made an observation of GX Cas. The belt of single malt was the evening before. *Bon voyage.*

G. M. ROSS

**Raymond B. Larson**

(August 13, 1921 - September 25, 2011)

DAVE'S FOCAL POINT

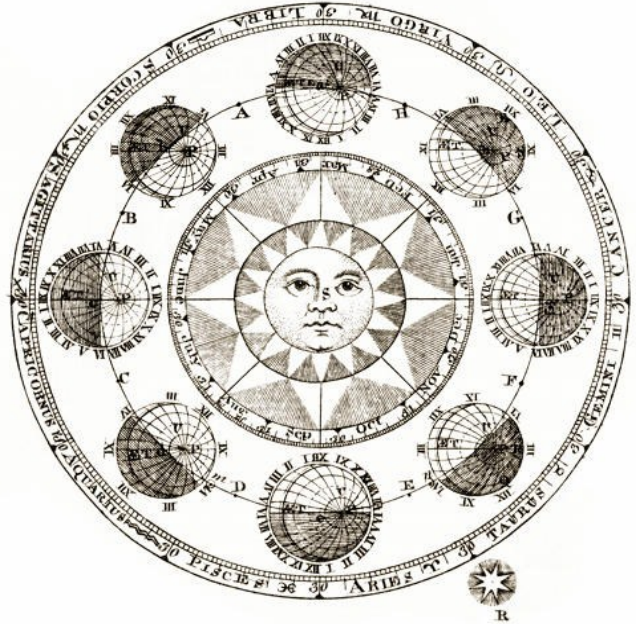
DAVE DEBRUYN GRAAA PRESIDENT

With the dawn of 2012, we look back upon an eventful year and ahead with anticipation. Thanks to the many members who regularly appeared on Kissing Rock Hill to assist with Veen Observatory visitors nights in 2011. While more than half of the scheduled events were clouded out, those that were not were especially well attended. Thanks to excellent promotional work by our webmaster/social media specialist Kevin Jung and continued cooperation from other media. Most important was enthusiastic member participation, without which we could not conduct these important outreach and fund raising events.

Likewise for the Art Prize sidewalk astronomy event, and wasn't that something this year? Four successive clear nights with the moon in a perfect phase allowed an estimated several thousand people to view lunar features, many for the first time. Thanks to those who gave up their evenings to provide this rewarding experience at several locations downtown.

We had some great speakers, highlighted by Robert Vanderbei from Princeton University in July, and our own Jacob Bourjaily from Harvard in October. Your program committee is now hard at work finalizing the slate of programs and other activities for 2012. Look for details in the printed *Meeting and Activities Guide*, coming your way in mid-January. Highlights include the popular beginners seminars at Schulers on the last Saturday afternoons of January, February, and March, a public event to observe the transit of Venus on June 5th, and return of the Perseid Pajama Party in August. At the January 21st regular meeting, Ken Burton from the Warren Astronomical Society will be with us for the annual Bruce P. Sidell memorial lecture.

The Guide will also include an updated listing of officers and board members for 2012. You did not receive the announced ballots for board elections this year because nobody came forward to run. Does this mean you are happy with your current leadership, or reluctant to be part of it? At some point, incumbents are going to retire, and "new blood" is important to the vitality of any organization. If you are among the younger members, please



consider stepping up to a leadership position in the future.

We regret the passing this past autumn at age 90 of another of GRAAA's charter members. From its inception in 1955, Raymond B. Larson was one of the Association's most prominent leaders, serving in a number of offices and as a longtime board member. He was an enthusiastic liaison to regional and national astronomy groups, playing a big role in bringing two regional conventions of the Astronomical League to Grand Rapids in the 1960's. Ray's most lasting contribution was as one of the principal planners and builders of the James C. Veen Observatory. He drew up blueprints to guide construction, led many a work crew during the first years of construction (1965-67) and ground the mirror for the original principal instrument, a 12 inch reflector. A versatile, skilled, and enthusiastic man, he also made planetary drawings, took some of the organization's first astro-photos, and had many a story to tell. Something he did not talk about much was his participation in nasty battles in the Pacific theater in World War II. Ray's significant wartime service was poignantly called to our attention during a tribute at our November meeting by longtime friend Jim Marron. Ray

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DAVE'S FOCAL POINT

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Larson will be fondly remembered and appreciated by all who knew him.

On a brighter note, with the coming of the Winter Solstice on December 21st, we can now look forward to an eventual lengthening of daylight and hopefully some tolerable clear nights for stargazing. While the water system is turned off at the observatory until March 15th or so, the instruments remain in full operation, and some heat can be directed to the library for a needed warm up. With significant snow, we will make an effort to keep a walkway to the building open, but it will not be accessible to vehicles. **Do not attempt to drive up;** park in the designated area adjacent to Kissing Rock Avenue. A refreshing walk will do you good, and is inspiring with the brilliant winter stars and constellations twinkling overhead through the barren trees.

ACTIVITIES AT THE VEEN

Imaging Roundtable Announcement

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You may also contact:

Tom Haynes (tlhaynesmd@gmail.com)

Jose Borrero (galaxy45@hotmail.com)

Greg Comegys (greg_comegys@charter.net)

CLASSIFIEDS

To have ads placed in the Inside Orbit please contact Dell Paielli : paiellid@gvsu.edu

For ad placement on the GRAAA website contact Kevin Jung graaa@graaa.org

For Sale: Meade 12" LX200GPS w/UHTC coating and Auto-Star II GoTo controller, Reduced to 3450.00

#771 eye pc case with 8 eye ps's 6.4mm to 40mm

#905 variable polarizer

#911 nebular filter

#1A rear cell sky filter

#62 T-adapter

Canon FD ring

#612 dew hood

#547 AC adapter

12mm illuminated eye pc

F6.3 focal reducer

Full aperture Solar Filter

#777 off axis guider body

Mobile cart with wheels that the tripod sits on.

Rolls on any hard surface.

#07492 Accessory shelf

Idems can be sold individually

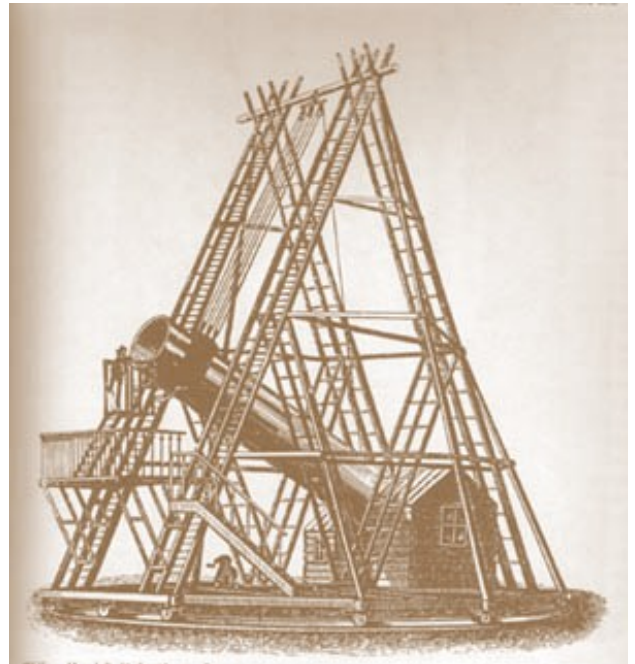
Many of the idems are still in their original packages. The scope has been used maybe 8 times.

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