

Understanding pole star shifts

Precession, the Earth's "wobble" on its axis of spin as it orbits the sun, accounts for the fact that it enters different astrological and astronomical constellations each month. Precession also explains two other celestial phenomena, one being that the pole star shifts over time and the other the definition of a celestial age. About 4000 B.C., the pole star was Thuban in Draco and the Egyptians built the Great Pyramid to note the direction of north. Today, the pole star is Polaris in the Little Dipper and, by 14,000 A.D. will have shifted to Vega in Lyre. An age is defined by the constellation that the sun is in at the vernal equinox. Millennia ago, it was the Age of Taurus followed by the Age of Aries. Today we are in the Age of Pisces, while many look forward to the upcoming Age of Aquarius. Because constellations cover such vast expanses of the sky, there is a great deal of controversy over when the Age of Aquarius will arrive.

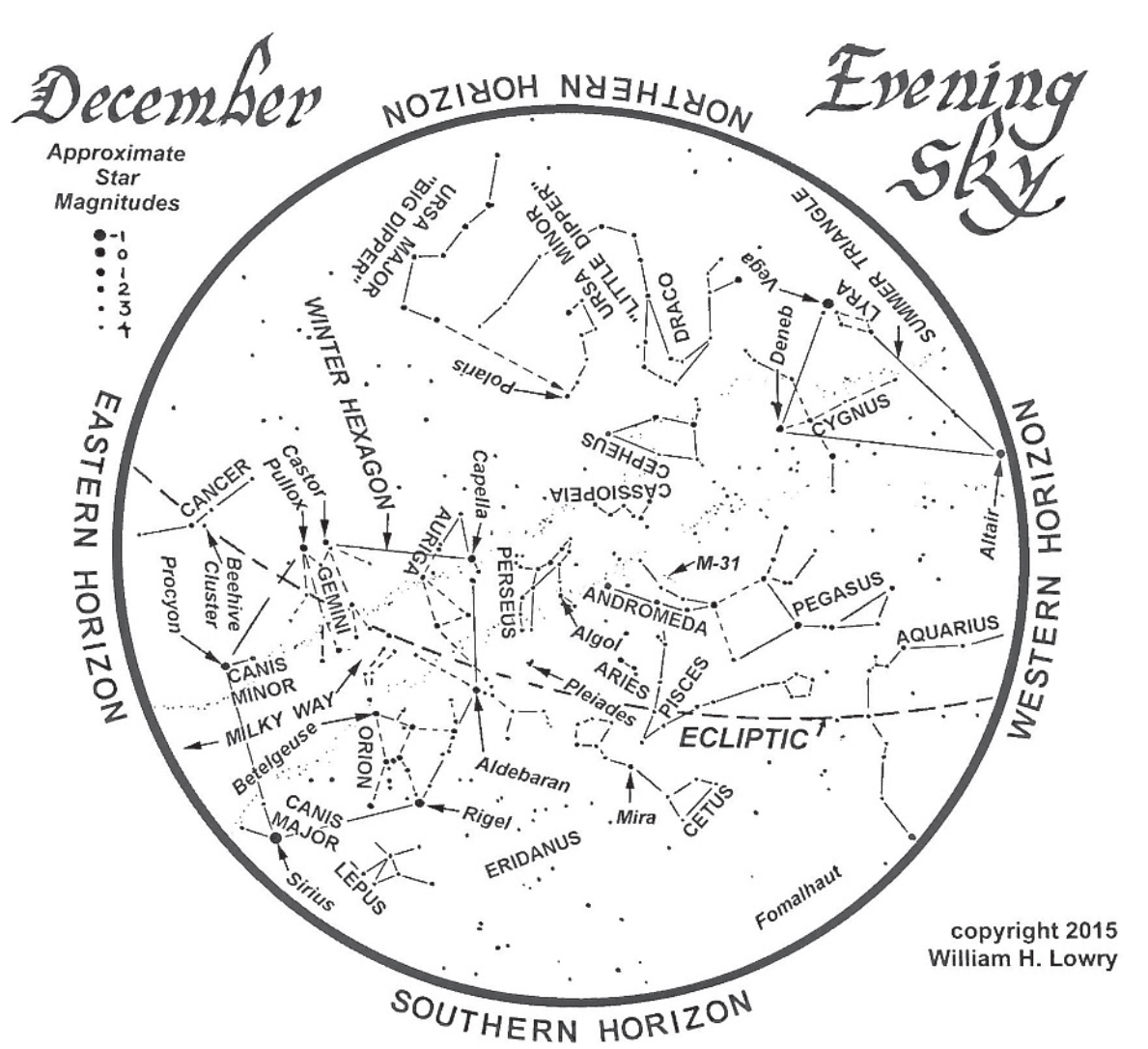
Focus on the planets

All the planetary action favors early risers this month as Jupiter, Mars, Venus and Saturn are all in the late night and predawn sky. Mercury remains hidden until midmonth when it hovers above the southwest horizon about 15 minutes after sunset. By month's end, Mercury does not set until

about an hour and a half after sunset. Venus is conspicuous in the southeast by 4:00 a.m., although it is starting to lose a bit of its luster. Venus is occulted by the moon on Dec. 7, but unfortunately, this takes place during the daytime hours. Mars rises in the east about 2:00 a.m. but appears as little more than a reddish-orange dot by telescope. Jupiter rises in the west shortly after midnight as December opens but two hours earlier by month's end. The planet's belts and zones will be readily observable as are the antics of its four major moons about and across the face of the planet. Saturn becomes visible at mid-month when it rises in the southeast about an hour before sunup and two hours before sunup at month's end. Watch Venus and Saturn draw closer together as December closes with a close conjunction taking place on Jan. 9. Uranus rises in the southeast among in Pisces where its blue-green disk should be available by binoculars. Neptune is high in the southwest as darkness falls where its blue-gray disk may be found among the stars of Aquarius. It sets about 10:00 p.m. and will prove reasonably easy to spot with binoculars. Sky and Telescope magazine provides a finder's chart for the two outermost planets at skypub.com/urnep.

December events

1 Sunrise, 6:52 a.m.; sunset, 3:56 p.m.



3 Moon in last quarter, 2:40 a.m. Note Jupiter directly to the left of the moon about an hour before sunrise.
5 The moon is at apogee or farthest distance from the Earth. Mars is to the lower left of the moon an hour before sunrise.
7 The moon is extremely close to Venus before dawn with occultation taking place during the daylight hours.
11 New moon, 5:29 a.m.
14 Geminid meteor shower peaks tonight but should last over the next few days. The recent new

moon will pose little problem for viewers who can expect up to a maximum of 120 meteors per hour emanating from a point near Castor of Gemini.
18 First quarter moon, 10:14 a.m. The sun enters Sagittarius on the ecliptic.
21 Moon at perigee or closest approach to Earth. Winter solstice, 11:48 p.m. in the northern hemisphere. The sun enters the astrological sign of Capricorn at the solstice.
25 Merry Christmas! Celebrate by observing the full moon at 6:11

a.m. The full moon of December is known as the Long Night Moon.
31 Venus is in the southeast about 45 minutes before sunrise with Saturn to its lower left. Later, about 6:00 a.m., Jupiter is to the upper left of the moon in the southwest. Sunrise, 7:13 a.m.; sunset, 4:04 p.m.

Send astronomical queries to Clair Wood at cgmewood@aol.com or care of the Bangor Daily News, Features Desk, P.O. Box 1329, Bangor, ME 04402.



Mike Palmer speaks during the 2015 Maine State Beekeepers Association annual meeting and conference recently at Hampden Academy.

Hampden buzzing with beekeepers

November saw the highlight of the Maine State Beekeepers Association's year when its annual meeting and conference was once again held at Hampden Academy. This was the second year in a row that my club, Penobscot County Beekeepers, has hosted the meeting, so the high standards set last year needed to be maintained. We had more than 260 beekeepers from all over the state attend, up by about 15 percent over last year. As usual, the Hampden Academy venue was awesome, spacious and comfortable. I was particularly looking forward to hearing keynote speaker Mike Palmer of Vermont, one of the world's leading authorities on beekeeping in northern climates. Palmer gave two talks. "Keeping Bees in Frozen North America" pointed out the need for and means to achieve large colonies of healthy bees required to be successful in the north. He also pointed out the need for their sensible management and best strategies to achieve this. His second talk, "The Sustainable Apiary — Brood Factories and Bee Bombs," suggested how the overwintering of nucleus colonies, made from dividing up the less well-performing colonies, could be used to boost production, raise queens and provide a more reliable and less expensive supply of new bees in the spring. Even I gave a brief talk, ably

assisted by a student representative of the Hampden Academy beekeeping club, Lily Salfi. We talked about the club, discussing its establishment of the school club and plans and pointers towards starting more such groups around the state. From the feedback we had after our talk, it looks like that will soon be the case. Salfi also pointed out how her participation in the club helped her to stand out from the crowd while attending college tours. While none of the schools she visited have a beekeeping club, they are all keen for her to start one when she gets there! One of the highlights of the day for me was presenting the MSBA Lifetime Achievement Award to my friends, mentors and business partners, Harold and Hilda Swan. Over the last seven decades, the name Swan has become synonymous with honey in Maine. I doubt that there are any beekeepers in this region who haven't spent many hours with Harold Swan discussing beekeeping and learning from his unmatched expertise. There also was a presentation to Peggy McLaughlin of York County Beekeepers as she was presented with the MSBA Beekeeper of the Year Award. McLaughlin is only the third woman in Maine to achieve the Master Beekeeper qualification. An ever-popular event is the blind honey-tasting competition. Beekeepers from all over the state entered a sample of their honey. This year's top placed honey was that of Lindy Allen of Freeport. Second place went to Patti Drake of Presque Isle, my personal favorite!

There was a tie for third place between two of our local beekeepers, Mike Leighton of Orrington and Bruce Barker of Dixmont. We expect that next year's conference will be hosted by another chapter of MSBA so the hardworking folks at Penobscot County Beekeepers who have hosted the last two events can relax and enjoy the day more! Thanks to all who worked so hard and made both events so successful. Now there is snow in the air. I am preparing for my new beekeeping classes for 2016. If you are interested in taking up beekeeping, you can check for a class near you in your local adult education office, at www.mainebeekeepers.org or call me to book a space at one of my one-day classes in Hampden. If you are thinking about holiday baskets to send to friends and family out of state, you can help local beekeepers by buying local honey, lip balms, hand creams, candles and more as gift items. You can usually buy these direct from the beekeeper but also at local farm stands and health food stores. Buying this local produce helps us to grow more honeybees, pollinate our crops and create a healthier environment for us all.

Peter Cowin, aka The Bee Whisperer, is president of the Penobscot County Beekeepers Association. His activities include honey production, pollination services, beekeeping lessons, sales of bees and bee equipment, and the removal of feral bee hives from homes and other structures. Check out "The Bee Whisperer" on Facebook, email petercowin@tds.net or call 299-6948.

Things to Do Outdoors

BANGOR — Carey Kish of Mount Desert Island, author of "Best Day Hikes Along the Maine Coast," discussing his two times thru-hiking the Appalachian Trail, 6-7:30 p.m. Tuesday, Dec. 1, Epic Sports, 6 Central St. Signed copies of book will be available for purchase.

BANGOR — "The Bugly" with Jim Dill, UMaine Cooperative Extension pest management specialist, to discuss spiders, ticks, mosquitoes, bedbugs, biting flies and more, 7-9 p.m. Wednesday, Dec. 2, Bangor Land Trust office, 8 Harlow St., Suite 4B. 942-1010.

BANGOR — Walking and rolling through Bangor City Forest and Great Skates with Maine Yoga Adventures, noon-3:30 p.m. Sunday, Nov. 29, meeting at Bangor City Forest, Tripp Drive. \$25 per person or \$60 per family. maineyogaadventures.com or 299-0082.

BOOTHBAY — Boothbay Region Land Trust nature hike, 10-11 a.m. Tuesday, Dec. 1, Lobster Cove Meadow. Free. Registration not required. Meet at trailhead parking lot. Tracey Hall, thall@bbrlt.org or 633-4818.

BOOTHBAY HARBOR — Boothbay Region Land Trust Yule log hike, 10-11:30 a.m. Saturday, Dec. 12, Penny Lake Preserve, 196 Townsend Ave. Gather natural items for a yule log, then head to the land trust office to create a yule log. Tracey Hall, thall@bbrlt.org or 633-4818.

GRAND LAKE STREAM — Downeast Lakes Land Trust sponsors "Allagash Tales and Tales," narrated by author and former ranger supervisor Tim Caverly, 6-7:30 p.m. Monday, Jan. 25, Grand Lake Stream School Building, 15 Water St. Music, scenic and historic photographs from Maine's North Woods. 796-2100 or cbrown@downeast-lakes.org.

LINCOLNVILLE — Waldo County Humane Society free rabies vaccination clinic, 9-10 a.m. Saturday, Dec. 5, Lincolnville fire station, 470 Camden Road. Animals must be on leashes or in portable carriers. Rabies shots are free to animals with owners residing in Waldo County. Pets from other counties must pay a small fee. Donations accepted. Coupon discounts toward cost of having pets spayed or neutered available at any Waldo County Humane Society rabies clinic. 852-5033 or WCHS479@gmail.com.

LOVELL — Lovell Girl Scout Cadette Troop hunters breakfast, 5-9:30 a.m. Saturday, Nov. 28, VFW, corner of Smart's Hill Road, off Route 93. Menu includes sausage links, scrambled eggs, pancakes, home fries, biscuits, gravy, baked beans, orange juice, milk, hot chocolate and coffee. \$8, \$5 children 12 and under. 928-2155.

MONTVILLE — Family-friendly hike to explore new 2-mile loop to Freedom Pond with outdoor enthusiast Glen Widmer, 1 p.m. Sunday, Nov. 29, meeting at Reed Preserve parking lot on Goosepecker Ridge Road, 2 miles south of Freedom Pond Road junction. Look for a parking area on the right with a sign that says "Reed Preserve." Co-sponsored by Sheepscot Wellspring Land Alliance and Sebasticook Regional Land Trust. 589-3230 or swla-maine@gmail.com.

NEWCASTLE — Damariscotta River Association tour of Dodge Point Public Reserve with Peter McKinley, 10 a.m.-noon Saturday, Dec. 5, Dodge Point Public Reserve, River Road. Free and open to all. Registration required by 3 p.m. Friday, Dec. 4. 563-1393 or dra@damariscottariver.org.

OLD TOWN — Book signing by Tom Hennessey, author of "Leave Some for Seed," 11 a.m.-1 p.m. Saturday, Dec. 5, Old Town Trading Post, 1681 Bennoch Road. Presented by Islandport Press.

ORRINGTON — Birding Schoodic Peninsula van trip with Fields Pond Audubon Center naturalist Doug Hitchcox, 9 a.m.-noon Saturday, Dec. 5, Fields Pond Audubon Center, Fields Pond Road. \$20 members, \$30 others. Van leaves from Fields Pond. Register early, space is limited.

PORTLAND — Down East Ski Club's 53rd annual one-day ski, snowboard and winter sports sale, 8 a.m.-4 p.m. Saturday, Nov. 28, Portland Expo, 239 Park Ave. Complete ski packages, new and used gear. Door prize. If you have ski, snowboard or snowshoe equipment or clothing to sell, drop it off 2-6 p.m. Friday, Nov. 27, to be tagged and sold Saturday. Unsold items must be picked up 5:30-7 p.m. Nov. 28.

WINTER HARBOR — Atlantic Salmon Recovery Plan public information meeting, 2-4:30 p.m. Tuesday, Dec. 1, Moore Auditorium, Schoodic Institute, 65 Acadia Drive. 469-6498.

For a complete listing of calendar items or to submit your event, visit www.bangordailynews.com.