Fun and Games

by Marvin Rosenberg

A brain teaser for mathematically inclined neighbors.

A friend of mine knows that I love birds and lizards and dropped a bunch of both creatures at my home. Just for fun (I do love math), I decided to count only the heads and legs of these animals. I finally counted 30 heads and 70 legs.

Can you figure out how many birds and animals I had to care for?

Try your algebra skills before you look up the answer on page 19.

THE STARRY SIDE

The four seasons

BY GREELEY WELLS

Since the 'Gater is moving to a seasonally published paper, at least temporarily, it's appropriate that I join in the celebration of this new development. This is the first, I trust, of many winter editions of the seasonal paper. So we start here with cold and snow, short days, and long nights. How does that happen? I mean there's just us and the sun moving along together in the same configuration: us around the unchanging sun. Tilt is the answer!

Can you believe it is all about something so small as tilt, our tilted position in our orbit around the sun?. The earth isn't upright and spinning, it's tilted and spinning. Sometimes that tilt, from the northern hemisphere, is towards the the sun and we get summer and its June solstice. Sometimes it's away, like now and it's our winter solstice. The other two times it's equal, the tilt is canceled out by our position around the sun and we have equinoxes, i.e. spring and fall. I'm writing now in fall but when you get this it'll be winter, just past the winter solstice.

If we lived at the equator there'd be no changes, no effect of this tilt. There'd be no seasons as we know them. The same temperature and amount of sun all year. There may be monsoon or dry seasons or other effects, but not defined by the earth's tilt.

Here in Oregon we're in a decidedly different situation. Have you noticed going north on the I-5 freeway that sign, that says "the 45th parallel" somewhere around Roseburg? We're just below that in the Applegate Valley at about 42º parallel. The equator is 0º and the north pole 90º so we're almost dead center between them. We're almost exactly halfway up the globe between the equator and the pole.

My sister, Elizabeth, lived for years up in Anchorage so I've been up to Alaska, and I've seen a bit of what the night sky is like up there. The Northern Cross is outrageously close to overhead and all the circumpolar stars circle visibly around it. Now at the pole, where not many of us have been, it's literally overhead. In summer the sun never sets and in winter it never rises!!!! In Alaska, winter has a dawn and then a dusk. In summer a sunset and dusk and then a dawn and sunrise, no night! Glad to live here in the middle!

In my opinion we live in the perfect spot on the planet. Not too much sun or too little, not too much hot or too much cold, not too much dry or too much snow and wet. Thank you Lord for bringing me to Oregon!

THE PLANETS

Venus' fall dance is continuing into winter with the New Year's night dusk high and bright in the sky in the southwest near a crescent moon and Jupiter, a nice show. Later at midnight Sirius, our best and brightest star, is high up in the south, a sentinel for the new year. In mid January Venus slows, stops and begins moving west towards the sun against the backdrop of stars behind it. At January's end a crescent moon visits Venus again on the 29th. In February, the distance between Venus and the sun noticeably shortens. On the 27th Venus is at its brightest and next to it is a beautiful crescent moon again, only three-days old. By March, Venus is catching up with the sun, and by the equinox, on the 20th, Venus sets just an hour after the sun sets. Venus is soon to sink into the sun and disappear, to be seen again in the east in April as the morning star. Good-bye for a while, thanks for the beautiful dances. Hope you have a good rest.

Jupiter starts January in the southwest at sunset and by mid-month has disappeared into it and out of sight! This, our biggest planet, is joined by Mercury, the smallest, and they disappear almost together. What are those two doing out of our sight? Well, Mercury quickly jumps into the dawn sky but is hard to see as it bobs up and then down in the glow of the sun hugging the horizon line early each day. We won't see Jupiter for a while.

Saturn, on New Year's day, rises around 10:30 pm and moves slowly up and west through the stars. Its rings get more edge on, then by February begin to open to us again. Saturn is the main planetary attraction through the nights for the rest of the year.

Mars has eluded us for a while till barely visible in mid-January at dawn, but by March Mars will slowly rise in our easterly predawn sky for you early risers.

Mercury plays with the light of the sun at dusk first, then dawn and as always, is small and hard to see. (See Jupiter above.)

OF SPECIAL NOTE

January's full moon: The Moon After Yule or Old Moon is on the 10th. February's is on the 9th and is called The Wolf, Snow or Hunger Moon. The Lenten, Sap, Crow or Worm Moon is on March 10th. Don't you just wonder about those names?

Quadrantids Meteor Shower is a winter treat for us this year, and with the moon setting at midnight, it's considered favorable for the west coast. It's on January 3rd at 4:50 am pacific standard time (PST) and the radiant is high in the northeast. One of its problems is its short time of meteor showers (only 14 hours or less), but it could produce 100 meteors per hour, so the brave and cold-blooded will be rewarded in the pre-dawn hours.

The Spring Equinox, the beginning of spring, is on the 20th of March this year. More or less equal day and night with the sun right on the ecliptic, which is an imaginary line at the midpoint of the paths of the sun and moon. When the sun's path is north of the ecliptic it's winter and cold, where we are now, to the south of the ecliptic the warmth of summer is on its way.

Hard to see but always interesting is a penumbral Lunar Eclipse. That's the earth's outermost shadow striking the moon's surface with a strange, subtle, warm light. Warm because it, in effect, is the light of a perpetual earth sunrise/sunset, all around the earth from the moon's point of view. Isn't that an image! This happens at 4:41 am, PST, in the predawn of February 9th with the moon dropping low in the west, opposite the sun about to rise in the east. We, the earth, are in between making the shadow. Ah, the solar system and the music of the spheres!

One last thing, a beginning! 2009 is the International Year of Astronomy. Endorsed by the United Nations Education, Science and Cultural Organization, designated by the International Astronomical Union and marking the 400th anniversary of Galileo's first telescopic observations, this is truly a global event. The theme is "The Universe, Yours to Discover." One of the objectives is to open the universe's images, knowledge, wonders and potentials to as many of us 6.8-billion earthlings as possible. Some ways to connect are: Twanight.org (the world at night global landmark images site), skyandtelescope.com/BU2009 (a cosmic visual exhibit) and 400years.org (which is related to a planetarium show and PBS film airing early in '09.) So, friends, buckle up and enjoy the show—all year!

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