

*Hubble Space Telescope*, discovered “blue blobs” in a structure called Arp’s Loop, a wispy bridge of neutral hydrogen gas that stretches between M81 and M82. These “blue blobs” were interpreted as small clusters of O and B stars recently condensed from the gas that was tidally stripped from M81 and M82. In effect, they are orphaned clusters of blue stars that may be as young as 10 million years and that do not appear to belong to either galaxy. The next time you look through your telescope at M81 and M82, just try to imagine Arp’s Loop and the “blue blobs” between them. ●

## Reference

deMello, D.F., Smith, L.J., Sabbi, E., Gallagher, J.S., Mountain, M., and Harbeck, D.R. 2008, *AJ*, 135, February, 548

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## Through My Eyepiece

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# Perception and Reality

by Geoff Gaherty, Toronto Centre ([geoff@foxmead.ca](mailto:geoff@foxmead.ca))

Now that the International Year of Astronomy is upon us, we all probably find ourselves talking to the public more about astronomy. Sometimes this communication fails because what we, experienced astronomers, see in the sky is quite different from what someone who rarely looks at the sky will see. I spend a fair bit of time these days answering questions in the Astronomy & Space category of *Yahoo!Answers* (<http://ca.answers.yahoo.com>). Most of the people asking questions know little about astronomy, so this gives me a good sense of the difficulties people have in understanding what they see in the sky. Here is a good example:

**Did anyone notice the overly huge star next to the Moon last night? I saw it around 7-ish p.m. (Central time). I don’t know if it was just a planet getting close to earth, UFO, or just a big-\*\*\* comet about to crash into our planet.**

This refers to the conjunction of the Moon and Venus on 2009 January 29 [see Ralph Croning’s photo in Pen & Pixel - Ed]. You will notice that *Y!A* has a “profanity filter” which coyly hides words it considers to be offensive with asterisks; this makes it particularly hard to discuss human evolution when our species always comes out as “\*\*\*\* *sapiens*”!

The first problem is that Venus is described as an “overly huge star.” I’m not surprised at people confusing stars and planets; I expect that. What concerns me is the highly inaccurate “overly huge.” This person is clearly confusing size and brightness. On this night, Venus was 29 arcseconds in diameter: to anyone with normal vision, this is a point source of light. It’s certainly very bright (magnitude -4.5), but not huge. I see this mistake again and again, people describing bright objects as being large in size.

The other distressing issue in this question is the person’s readiness to jump from a factual description to a far-fetched interpretation. To the inexperienced observer, most objects in the sky are UFOs, in its true meaning: Unidentified Flying Objects. After all, they wouldn’t be asking what this was if they could identify it. Unfortunately, for most people on *Y!A*, UFO means “alien spacecraft.” To an advanced astronomer, the interpretation of Venus as a comet may seem strange, but I still remember my first night as an amateur astronomer, trying to figure out whether the bright object I saw in Leo was a comet or not; it turned out to be Jupiter. What does bother me is the leap from a comet to its being about to crash into our planet!

**What’s going on with the Moon? I live in Illinois and the Moon is acting weird. It is on the completely opposite side of the sky it is usually on, looks twice as big. Here’s the weirdest part. It is crescent, but the visible crescent is on the bottom, not sideways.**

Non-astronomers have a lot of trouble with the Moon’s phases. A very large number of the people on *Y!A* are convinced the phases are caused by the shadow of the Earth falling on the Moon; this is by far the most common astronomical error people make. They are baffled when they notice that a gibbous Moon’s terminator is convex. Related to this is the belief that the Moon can only be seen at night; they are greatly surprised when they see the Moon in a daylight sky. They also seem to believe that the Moon is always in the same location in the sky. These three beliefs are all mutually exclusive and are all contrary to Kepler’s Laws, but somehow some people manage to believe all three simultaneously. It is amazing what you can believe if you don’t think — are these the same people who deny the Apollo Moon landings?

Many people believe that the crescent Moon's cusps are always oriented pointing either east or west, which of course only occurs when the ecliptic is nearly parallel with the horizon. This gets them totally confused when, as in this case, the ecliptic is nearly perpendicular to the horizon, so that the cusps of the waxing crescent Moon are pointing straight up.

**If you watch the Earth from the Moon, is it possible that Earth is illuminated at the top? The Moon for Jan 18, 2009 is illuminated left part, sometimes the right part is illuminated. When will the Moon be illuminated only at the top (or bottom)? That means the Sun is up and I should be receiving all light from Sun, right? How the photo of Earth from Moon is top illuminated?**

This one really had me baffled until I realized that he was talking about the famous Apollo 8 image of the Earth from the Moon.



The Apollo 8 vehicle was in a near-equatorial orbit of the Moon. The astronaut taking the picture held the camera so that the lunar horizon was more or less vertical, or running north to south<sup>1</sup>. Therefore, the Earth in the iconic picture has

<sup>1</sup> From the Apollo history [http://history.nasa.gov/ap08fj/14day4\\_orbits456.htm](http://history.nasa.gov/ap08fj/14day4_orbits456.htm): "We have presented this photograph in an unconventional orientation with the Moon's horizon vertical. On Earth, the convention for a sunrise or moonrise shot is to have the horizon running left to right. Bill Anders has said that this is how he sees this image. They were orbiting around the Moon's equator and with north being to the top, Earth came out from behind a vertical horizon."

been oriented so that north is to the right and south is to the left. It was actually very close to Northern Hemisphere's winter solstice, so the southern part of the Earth is more illuminated than the northern half. All this is pretty obvious to a serious astronomer, but anyone else looking at the picture assumes the Moon's limb is horizontal and the Earth is being lit from "above."

Another area where astronomers and non-astronomers may miscommunicate is when talking about directions. As astronomers, we automatically orient ourselves to the cardinal directions given us by the stars: Polaris is north, and all else follows. The public tends to base their directions on the local street grid, which can be very deceptive. Most astronomers living in Toronto, say, soon learn that the street grid is tilted about 15° relative to true north. Astronomers in Montréal have a much worse time of it: in the central city, the grid is rotated about 75°. Sherbrooke Street is an extreme case: from Peel to Pie IX it runs almost due north-south, despite being named Sherbrooke East and West!

All of which we need to keep mind when we're talking with people during the IYA. It's very easy to forget the difficulties we all had when we first started talking astronomy. ●

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