

MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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NGC-404 Elliptical Galaxy In Andromeda

Introduction

The purpose of the observer's challenge is to encourage the pursuit of visual observing. It is open to everyone that is interested, and if you are able to contribute notes, drawings, or photographs, we will be happy to include them in our monthly summary. Observing is not only a pleasure, but an art. With the main focus of amateur astronomy on astrophotography, many times people tend to forget how it was in the days before cameras, clock drives, and GOTO. Astronomy depended on what was seen through the eyepiece. Not only did it satisfy an innate curiosity, but it allowed the first astronomers to discover the beauty and the wonderment of the night sky.

Before photography, all observations depended on what the astronomer saw in the eyepiece, and how they recorded their observations. This was done through notes and drawings and that is the tradition we are stressing in the observers challenge. By combining our visual observations with our drawings, and sometimes, astrophotography (from those with the equipment and talent to do so), we get a unique understanding of what it is like to look through an eyepiece, and to see what is really there. The hope is that you will read through these notes and become inspired to take more time at the eyepiece studying each object, and looking for those subtle details that you might never have noticed before. Each new discovery increases one's appreciation of the skies above us. It is our firm belief that careful observing can improve your visual acuity to a much higher level that just might allow you to add inches to your telescope. Please consider this at your next observing session, as you can learn to make details jump out. It is also a thrill to point out details a new observer wouldn't even know to look for in that very faint galaxy, star cluster, nebula, or planet.

NGC-404 Elliptical Galaxy In Andromeda

The Ted Komorowski Story – North Carolina Amateur Astronomer – 1940-1969

As you become absorbed in amateur astronomy, you may stop to wonder how others developed an interest in this hobby. Amateur astronomy is truly nothing new. The technology has changed, the number of people involved has changed, however, the same basic desire has remained the same. A curiosity of what's up in the night sky. While you may use a sophisticated computerized telescope with the finest of eyepieces, the earlier amateurs used both crude lenses and telescopes, sometimes made by themselves. Some did it for science, while others did it simply for pleasure and "for the love of." Within our own American history of amateur astronomy is the unusual, but sad story of one amateur, not unlike many of us in one way, however, far different in others. He left a legacy almost despite himself. This is the story of that amateur which has been told to me by some of his acquaintances from days past.

In 1992, I read the following from *1000+ The Amateur Astronomer's Field Guide to Deep-Sky Observing*, P-81, by North Carolina amateur and author, Tomm Lorenzin. I became very interested in the story and wanted to learn more.

"In the case of Andromeda's NGC-404, 'Comet Komorowski' commemorates highly eccentric Ted Komorowski, the Charlotte, N.C., amateur who 'discovered' the object and found nothing plotted that near beta Andromedae on Becvar's Atlas Coeli. Convinced of his claim to fame and immortality, he wired his discovery to the proper authorities and hopped from one foot to the other for days until the big needle returned by mail to puncture his dream.

Ted was an amateur astrophotographer long before it was fashionable to be-so (mid-60's). Impulsive by nature, he was known to 'assassinate' photos he thought less-than-perfect by shining a flashlight down the tube of his Newtonian while the camera shutter was still open. Alas, he was reported to have died a violent death by gunshot at the hands of his self-defending girlfriend." Tomm Lorenzin

Elliptical galaxy NGC-404 could easily be mistaken for a comet, especially if it was unknown to the observer, prior to the observation. This mag. 8 galaxy is nestled in the glow of the much brighter star, Beta Andromedae. I've observed it many times over the years and have found it to be fairly easy to see with telescopes as small as an 80 mm refractor. When observing it on those cooler fall nights, I always think about the excitement Ted must've felt when thinking he had discovered a new comet.

Gayle Riggsbee of Charlotte had known Ted for many years and talked with him only days before his untimely death in 1969. Gayle was a mechanical engineer and helped Ted with his numerous astronomy projects. On many afternoons, when returning home from work, Gayle would find Ted sitting on his steps. He might need some penny's converted into copper washers,

or any number of things. Ted didn't have a job, and had very little money, so he was forced to improvise on his projects.

Ken Dwight of Houston, lived in the same Charlotte neighborhood as Komorowski, from the early 50's until 1968. Ken knew Ted very well and was impressed with his skills and abilities as an amateur astronomer. Robert White became acquainted with Komorowski when he was only twelve years old, and had many discussions with him concerning astronomy and telescopes. Ted really liked to share his knowledge of amateur astronomy with others. He was a member of the Charlotte Amateur Astronomers Club for several years.

The Charlotte Amateur Astronomers Club has grown since the days of Ted Komorowski, with a current membership of a hundred or more, plus a club observatory. They also sponsor the nationally renowned and celebrated Southern Star Astronomy Convention in the mountains of North Carolina, near Little Switzerland. Gayle Riggsbee and Robert White are still members.

Ted Komorowski could be considered an advanced amateur for many reasons. During the early sixties, most amateurs were using small telescopes and fortunate indeed was one who had a 6-inch reflector. Ted's 12.5-inch f/6.5 Criterion reflector was the largest telescope in the Charlotte area during the early 60's. He was one of the first astrophotographers in the region and also documented his observations. He built his own drive corrector based on an article he had read about in a magazine. His photo efforts at times were very frustrating, but he still fantasized about selling his slides to planetariums throughout the country.

Ted corresponded regularly with Walter Scott Houston who was a contributor to *Sky & Telescope Magazine* for more than 47 years, writing the Deep-Sky Wonders column. Ted took amateur astronomy very seriously.

In the book *Deep-Sky Wonders*, Walter Scott Houston, selections and commentary by Stephen James O'Meara, adapted from his columns in *Sky & Telescope Magazine*, Ted is mentioned twice:

Page 7: "IC-434, but no Horsehead, was seen with a 2.4-inch refractor by Larry Krumenaker in New Jersey, with a 12-inch f/6.5 reflector by Ted Komorowski in North Carolina, and with 6-inch f/8 telescopes by Stephen Barnhart in Ohio and Mark Grunwald in Indiana. However, other observers were more successful."

Page 231: The Helix Nebula: "Ted Komorowski told of a gray disk easily visible in his 8-inch f/7.5 at 56x."

He also wrote many letters to the editors of *Sky & Telescope Magazine*, concerning everything from meteor showers to a review and comparison of planetary nebulae.

Some personal information about Ted:

Ted lived with his parents, except for a brief period when he went away to college. He didn't have a drivers license until a year or possibly two, prior to his death, and he never owned a car. His mode of transportation was a bicycle. On occasion, he'd ask others for a ride, however, he had very few friends. From all accounts, it would appear that Ted had some social skill issues, at times having difficulty relating to others.

He earned a scholarship to Carnegie Institute of Technology in Pittsburgh, Pennsylvania and studied nuclear physics, but attended for only a year, possibly two. Then, he then returned home where he felt the most comfortable. Ted had a desire and ambition of becoming a planetarium lecturer.

A year or two before his death, Ted did get a job, delivering milk, during the very early morning hours. This might've been the perfect job for him, as he worked mostly by himself, and it allowed the opportunity to observe every clear night, if he so desired.

As Tomm Lorenzin mentioned above, Ted died of a gunshot wound in 1969: It has been alleged that his girlfriend was planning on severing her relationship with him. She was concerned that he might become violent when she delivered the bad news, and secured a small handgun for self-defense. Allegedly, after the breakup, she felt threatened during a confrontation and fired a single shot, hitting Ted in the chest, killing him instantly.

After his passing, Ted's father asked fellow club member, Gayle Riggsbee if he would select some of his best slides and give to the Charlotte Nature Museum as a memorial.

A bit about Ted's telescope, a Criterion 12.5-inch f/6.5 reflector:

The telescope was ordered from Criterion as an optical tube assembly only, but without the mirrors. Ted, however, ordered the mirrors from the Optical Craftsman, who guaranteed his criteria for a 1/20 wave accuracy. From all who have had the opportunity to observe through this scope, it has been reported to be an excellent mirror indeed. The mirror is dated 12-2-60, which might indicate that the telescope was possibly received in 1961. He replaced the standard four-vane spider with a custom made circular spider to eliminate spikes during astrophotography. This was an advanced feature in the early 60's.

Ted's favorite eyepiece was the Criterion 16.3 mm Erfle with a very wide 75° apparent field. He also had the 4 and 6 mm Criterion Orthoscopic eyepieces. The focal length of the 12.5-inch f/6.5 scope is 2064mm, which would have given a magnification of 126X when using the 16.3 mm eyepiece. The 16.3 mm Erfle would most likely have been his eyepiece of choice when observing deep-sky objects. Could this have been the eyepiece that he employed when he saw the smudge in the glare of Beta Andromedae?

The 12.5-inch Criterion telescope is a large optical tube assembly, being slightly over 6 1/2 feet in length. Unfortunately, Ted couldn't afford to purchase the proper mount, but instead used the mount from his previous 8-inch Criterion scope, which was a bit too small.

The Komorowski telescope is now owned by the Cleveland County Astronomical Society. It's maintained and stored in the Williams Observatory, on campus of Gardner-Webb University in Boiling Springs, North Carolina. The telescope has been completely restored by Steve Davis and John Elmore of the Cleveland County Astronomical Society. This is a beautiful scope in pristine condition. The original Criterion mount has now been replaced by a much more heavy duty mount, manufactured by Meade Instruments Corporation, and designed for a 16-inch, model DS-16A reflector.

Showcase photo of the 12.5-inch Criterion Komorowski scope (photo courtesy of Tommy Forney).



I would like to thank Gayle Riggsbee of Charlotte, and Ken Dwight of Houston, without them and their memories, this story would have gone untold. Thanks also to Tom English for his research using the S&T magazine DVD collection to gather all of the magazine quotes letters and other, as related to Komorowski.

Roger Ivester

This is the last composition of a young amateur astronomer of Charlotte, North Carolina, who died suddenly early this year. He frequently reported his observations of celestial phenomena to this magazine. ED (*Sky & Telescope Magazine*)

Why Study The Stars?

To a casual spectator, the heavens on a clear night present a vast, featureless jumble of myriads of specks of light, with a few brighter beacons. But to someone who has taken the time to become acquainted with his heavenly friends, the sky is made up of orderly patterns and shapes, while bright or important stars and all the planets become celestial landmarks leading to the more difficult objects.

Some knowledge of the constellations gives one a 24-hour clock, a compass, and a protractor, but there are also philosophical aesthetic, and scientific reasons for stargazing. Stars are lovely to behold, forming attractive celestial patterns, and some who even have a shade of color. Scientists can study the stars to learn about matter under conditions unobtainable in earthly laboratories. An even greater knowledge of our own world and its beginning and its eventual ending can be gotten from observing stars in different ways.

Star names and their derivations indicate something of the contributions to astronomy of ancient and fallen civilizations, and celestial mythology is a storehouse of early folklore. The legends of Perseus, Andromeda, and Orion are well established in the sky for ages to come. The planets, too, have their store of myths. Mars, named after the Roman god of war because of its angry red countenance, is really not as harsh as its name implies, for it is the least hostile to life of all the other planets.

Men who spend their lives trying to figure out the scheme of things and find the meaning in the universe, men who are seeking answers to very difficult questions, are greatly aided and guided by knowing what is happening above. Reverent people may feel closer to the Creator after they have acquired a knowledge of his creations. Others may gain their first religious awareness from experiencing the wonder, awe, and mystery of the firmament.

Even ordinary laymen like ourselves, with no other aim than appreciating nature, can find immense enjoyment and well-spent hours in getting acquainted with other worlds above and beyond our own. Here is treasure for all kinds of people, regardless of their purposes, if only they will look and learn. Ted R. Komorowski

I would like to thank Gayle Riggsbee of Charlotte, and Ken Dwight of Houston, without them and their memories, this story would have gone untold.

Thanks to Tom English for his research using the S&T magazine DVD collection to gather all of the magazine quotes and letters.

A special thanks to *Sky & Telescope* Magazine for giving me permission to use the information and letters provided to the editors by Ted Komorowski, also quotes by Walter Scott Houston from Deep-Sky Wonders.

Roger Ivester

Observations/Drawings/Photos

Jim Mullaney: Observer From Virginia



Yes, it's true. I've been credited with saving an entire galaxy from oblivion! Although not that bright at mag. 10, this is one of the easiest of its class in the sky to find since it lies in the same field of view with mag. 2 Beta Andromedae (Mirach), just 6 minutes of arc to its northwest. Unfortunately, it's so close to the star that it was not plotted on atlases until I called Walter Scott Houston's attention to it, who then wrote about it in his *Deep-Sky Wonders* column in this magazine (*Sky & Telescope*). As a result, later atlases began showing the galaxy using a cutout of Beta's star symbol to make room for it as well. Easy to find but hard to see, this object looks much fainter than its magnitude suggests due to contrast with bright Beta, with the result that it's overlooked by most observers. Those who have chanced upon it often mistake its vaporous image for a comet (as well as a reflection of Beta itself). One observer excitedly said "Finding it was like discovering a diamond under a stone." A 3-inch glass at 60X will show it and it's obvious in a 6-inch scope at 90 on a transparent night. Sometimes referred to as "Comet Komorowski" and "Mirach's Ghost," this is the sky's finest example of a false comet. Don't miss it!

Tom English: Observer From North Carolina



Tom English (L) and Roger Ivester (R).



L-R, 24-inch DKT, David Herman, Nick Joslin, Alec Lagrega, Bill Osterholt, Kevin Erdy.

The AST 251 class at Guilford Technical Community College observed NGC-404 at 0:00 UT on December 11, 2014 (8:00 PM EST, Wednesday, December 10, 2014). We looked through a 24-inch CDK telescope at the Cline Observatory in Jamestown, NC, using a 28mm eyepiece (150X). We also used 21mm (200X) and 10.5mm (400X) eyepieces for additional views. Limiting mag. was estimated (by me) using IMO Field #2 (Beta Per-Delta Per-Zeta Per - see <http://www.imo.net/visual/major/observation/lm>) as no better than 5.5 (could see 6 stars in the field, but not 7).

Present with me for the observation were AST 251 students Kevin Erdy, David Herman, Nick Joslin, Alec Lagrega, and Bill Osterholt.

We centered the scope on Beta Andromedae for the initial view of the object. First impressions were that the galaxy appeared as an easily visible but unremarkable glow to the northwest of the bright star, resembling an internal ghost image of light from the star itself. Through this eyepiece, some saw suggestions of slight elongation, while others saw it as a roundish blob. Otherwise nobody noted an specific structure.

Centering on the galaxy and increasing the power to 200X, a consensus emerged that the elongation perceived earlier was an illusion, and in this view, our various reports of the shape were mostly roundish, with a couple of persons mentioning a boxy profile or a vague bean shape. Several observers noted a definite brighter center, perhaps slightly offset toward Beta Andromedae. Increasing to 400X just as some passing clouds started to encroach, we saw it as mostly roundish with hints of some irregularity of shape. Conditions deteriorated before we could explore this further.

Two days later, under similar LM conditions after our Friday night public viewing, a few of us took a quick look at it again. The time was December 13, 2014 01:30UT (9:30PM EST, Friday, December 12, 2014), and we used the 24-inch and a 28mm eyepiece. Observatory hosts Jeff Swanson and Jeremy Lyall contributed to the observation.

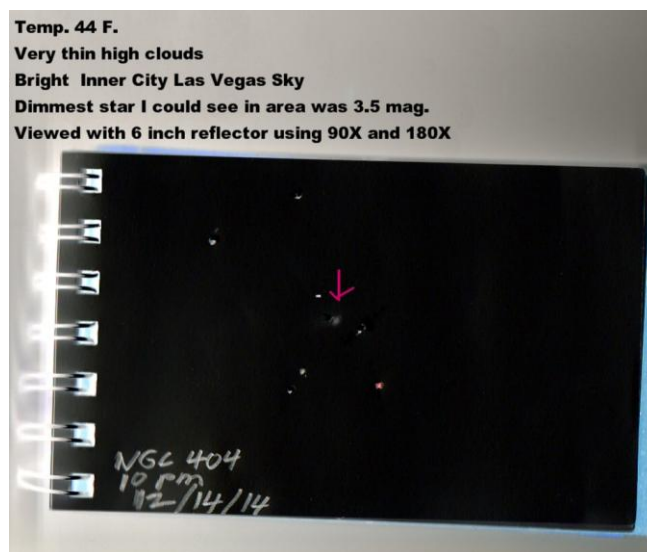
Again, with Beta Andromedae in the field, we saw a soft ghostly glow with a slightly brighter center. There were varied opinions of the apparent shape/orientation - from round to somewhat elongated. We moved Beta Andromedae out of the field to try to get a better look, but learned nothing new from this. Such an exercise might work better at higher power.

John Lourdes Pierce: Observer From Nevada



Being an optimist about what I can see with my 6 inch reflector from my inner city backyard, and always trying to squeeze every last photon out of the scope, I was just barely able to detect NGC 404. At the time, it was at its highest point in the sky. Viewing conditions were what I considered good for viewing from my backyard from within the inner city of Las Vegas. It was visible only periodically and only with use of averted vision. Along with the star Mirach and the nearby mag. 8.5 star, it formed a near perfect triangle. At no time, however, was I ever able to get a clear honest viewing of it and would've never noticed it if I weren't looking for it. Yet I enjoyed the viewing session in the very cool and calm night air.

The second time was a charm. I tried again Sunday evening and was greeted with many times better conditions. Saturday evening December 13, 2014 only gave me a hint that NGC-404 was there. However, 24 hours later, the conditions were many times improved and I was able to get a very good view of this distant galaxy.



Gary Bruno: Observer From Nevada



I was able to observe NGC-404 at around 11PM on the evening of October 5, 2014. I saw two galaxies in my finder scope, the brighter one being M33. NGC-404 was smaller and much dimmer with more field stars in close proximity. I observed NGC-404 using magnification of 65X and 87X respectively, with my 14-inch Schmidt-Cassegrain telescope. I'm observing it a month early, as this telescope only has a range to the east. I'll view it with my 10-inch binoculars as it approaches the zenith from a different vantage point later in the month. It was hard to distinguish NGC-404 because it was washed out by the bright star Mirach, however, it was easy to determine its nature as a galaxy.

Sue French: Observer From New York



I last logged NGC-404 on July 12, 2005, 1 am EDT with a 254/1538mm (10-inch f/6.1) Newtonian. The seeing and transparency were fair.

At 118X, NGC-404 is a small, round glow, about 7' in position angle 330° from Beta (β) Andromedae. It's a little brighter in the center. At 171X, the galaxy spans about $1\frac{1}{2}'$. It grows gently brighter toward the center, where a tiny nucleus resides.

Glenn Chaple: Observer From Massachusetts



This galaxy deserves the nick-name “Mirach’s Ghost.” It could certainly be mistaken for a ghost image of Mirach, caused by internal reflection in the eyepiece. Viewed with my 10-inch f/5 reflector, NGC-404 appeared as a faint, roundish patch of light hidden by glare from Mirach. Mirach itself was a beautiful golden yellow star.



Jay And Liz Thompson: Observers from Nevada



Jay and Liz Thompson

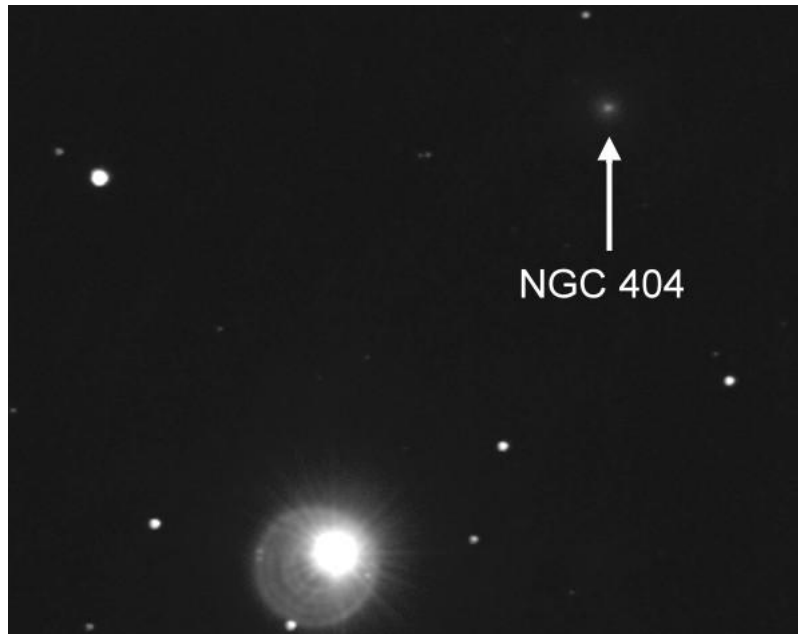
We observed NGC-404 from two locations with different telescopes. From our backyard in Henderson, NV, we easily saw it through a 14-inch f/11 SCT at both 98X and 279X. Our impression at 279X was of an unresolved globular cluster. At 279X, it was well-separated from Beta Andromedae.

From the dark skies of Meadview, AZ, we saw it best at 125X with the 17.5-inch. At 63X, we could see it but it was not well separated from the glare of Beta Andromedae. Our impression of it as an unresolved globular cluster carried over from the view through the 14-inch SCT.

Again at Meadview, but with a 10-inch f/4 Newtonian reflector at 80X, NGC-404 was very evident with direct vision. It was still evident at 100X. At 133X, we could just make out a

tiny bright core, though there was considerable glare from Beta Andromedae. The galaxy, with its stellar core, still showed up well at 159X.

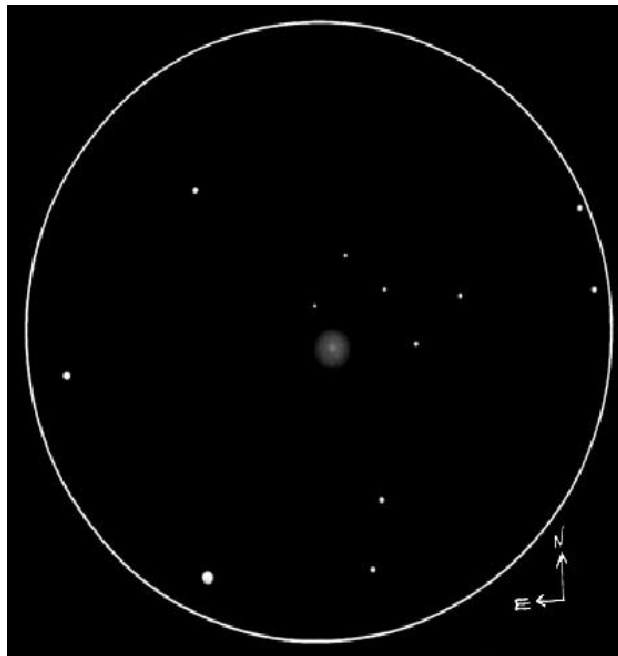
We imaged NGC 404 on October 19, 2014 from Henderson with the 14-inch SCT. The 30-minute image approximates the visual appearance through our 10-inch and larger telescopes.



Jaakko Saloranta: Observer from Finland



I observed NGC-404 with a 4.5-inch Dobsonian @ 152X (16') under rural skies (NELM ~7.0, SQM-L reading 21.41 near zenith) a couple of months back. It appeared as a small, round galaxy with a bright, star-like nucleus. The glare of brilliant Beta Andromedae interfered with night vision and made observing the galaxy interesting, to say the least.



Gus Johnson: Observer from Maryland



In 1967, using a 6-inch reflector at 59X, I saw a faint nebulosity beside of bright star Beta Andromedae. I had remembered seeing a picture of the galaxy in *Burnham's Celestial Handbooks*.

1967 with a full moon. Using a 4 1/4-inch reflector @ 34X, I glimpsed the galaxy.

January 1973, it was very easy with a 6-inch reflector at 59X.

1974, using an 8-inch reflector at 72X, NGC 404 was very bright with a brighter nucleus, and mostly round.

In 1990, using an 80mm (3-inch) refractor @ 38X, the galaxy was very dim.

Roger Ivester: Observer from North Carolina



NGC-404, galaxy in Andromeda:

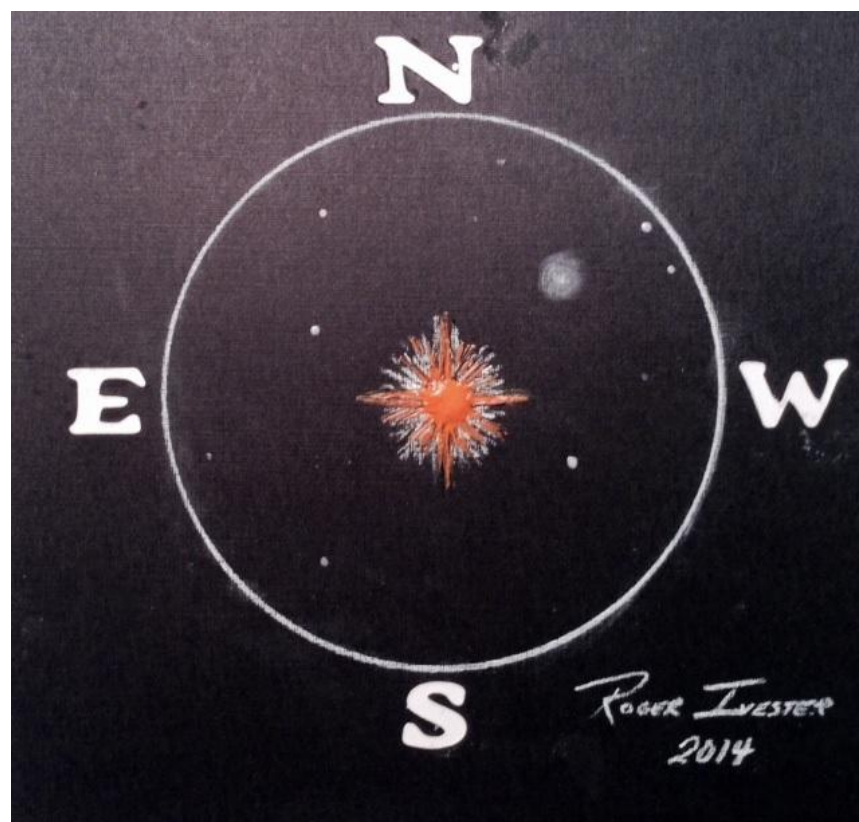
October 5, 1997: 3.5-inch Maksutov @ 146X, very soft glow, mostly round, difficult and very dim.

November 10, 1999: 102 mm (4.1-inch) refractor @ 83X, dim with very low surface brightness. Difficult, due to the extreme glare from bright star, Beta Andromedae. Surface brightness was low, with a very round shape. Brighter more concentrated middle with averted vision.

December 17, 2014: 10-inch f/4.5 reflector @ 200X, fairly bright, brighter middle, and a very subtle elongated shape. Stellar nucleus with averted vision.

I have approximately ten other observations over the past 25 years, but all are very similar to the above.

The following sketch was made using a 10-inch reflector @ 200X.



Fred Rayworth: Observer from Nevada



I've viewed Komorowski's comet many times and bothered to log it a total of ten times. I've done all my observations with 16-inches of aperture, from 70X on up and from Oklahoma to Nevada, starting in 1992. Despite the constant complaint of the bright Beta Andromedae, I've never had a problem spotting it, even on iffy weather nights. Considering the trouble I've had with most other galaxies on those iffy nights, I've always been surprised to pick up this faint but distinct, round and sometimes slightly oval spot.

For this Challenge, I was at Furnace Creek Ranch in Death Valley. At -190 feet below sea level, the site is a surprisingly good spot to observe, being an International Dark Sky location. However, the new site, which wasn't at our usual airport tarmac, did have some challenges that still need to be worked out. Add to that the weather, the night wasn't ideal. My notes say:

First time here. Could be a great site, but have a street light issue from general store. Three major lights shine from the south basically ruining the southern sky. Also, the date palms obscure the horizon so viewing down low is not an option. The night was clear, calm but seeing was lousy. As the night progressed, it became apparent that transparency was a huge issue. I never found a single new faint fuzzy, though I tried for several. I gave up in frustration. The tourist objects were readily available, but nothing to write home about. Still, it was okay.

The date was 24 October, 2014 and using my 16-inch f/4.5 at 102X, NGC-404 was a nice, small almost oval next to a very bright red-orange star, Mirach. It looked pretty good and slightly mottled, despite the glare of the nearby star. I detected the hint of a stellar core that flashed in and out. My drawing doesn't show the glare of Mirach, which extended beyond the

galaxy and grayed the sky quite a bit, yet despite that, the galaxy showed up quite well, even with those three street lights from the nearby store glaring right in my eye.

