Harford County Astronomical Society

Bel Air, Maryland
www.harfordastro.org

Volume 35 Issue 1 ***January 2009***

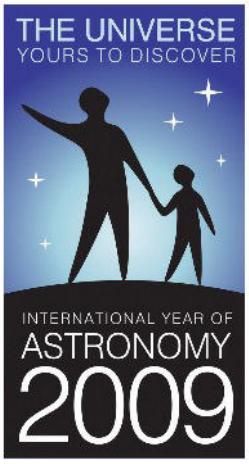
Public Star Party (Open House):

Jan. 31, 2008, at Dusk
At the Observatory

General Meeting:

February 5, 2008, 7:00pm
In the Observatory Classroom

Please check the website for possible schedule updates and changes:
http://www.harfordastro.org



http://astroleague.org/

http://nightsky.jpl.nasa.gov/

In This Issue:

HCAS Business Meeting

Minutes of January 13, 2009

1. President Tom Rusek called the meeting to order at 7:10 PM.

2. The minutes of the November and December 2008 meetings were published in the last newsletter. The group approved the minutes as published.

3. Treasurer: Tim Kamel reported that the club's bank balance was $3943.48. There are currently 41 members on the HCAS rolls. A new member, Mark Matysek, joined this month. We also received a $200 donation from Maple Elementary School in Dorchester County. Tom Rusek gave them a presentation last May.

4. Observatory operations:

a. Mark Kregel said that he has not heard from Sal Rodano recently about the school's response to our observatory upgrade proposal documentation. He will continue to try to contact Sal. Mark said that he is willing to start the surveying part of the project in the near future, with help from other members. Tom Rusek thanked him for all the work he has done on this project and reminded the group that personal, family, and work requirements should not be neglected to support HCAS activities.

b. A hawk has taken up residence in the observatory dome. Several members cleaned up the mess.

c. Tim Kamel noted a problem with the observatory telescope's Go To function on the moon. It worked fine for other objects, but it would not put the moon in the field of view. He will investigate to determine the cause of the problem. The date or time in the system may be incorrect.

d. The proposed HCC faculty visit will be scheduled after the observatory upgrades are complete. Mark Kregel suggested doing this as part of a regular open house meeting.

5. Outreach:

a. 20 people attended the open house on January 3rd. They started arriving at about 5:15 PM. A local author was in attendance. He was interested in looking at a real observatory for ideas for the setting of his next novel. He sent out a survey on opinions about extraterrestrials for interested members to fill out. Grace Wyatt noted that the open house was publicized in the Aegis newspaper and the local events television channel on Comcast cable.

b. Visitors seemed to know where to park and where to walk for the open house, even without the school's guard to direct traffic. Mark Kregel will reprogram the scrolling sign to make it more readable to people in moving cars.

c. Grace Wyatt and Roy Troxel will fill the display case at the Abingdon library on February 1st. The HCAS display will stay there until the end of February. We will have a display at the Bel Air library in April. These displays will emphasize the International Year of Astronomy, the HCAS open house schedule, and club and member activities. Cathy Tingler noted that news reports have stated that libraries get more business during poor economic times, thereby exposing more people to our displays.

d. A small scout group with 7-8 children will attend the open house on February 28th. They will arrive at 6:30 PM.

e. Tim Kamel did not have any news on the possible Parkville Middle School presentation.

f. Karen Carey will lead a presentation to a group of Brownie Girl Scouts at Camp Conowingo this weekend. She will help them make planispheres, do an eclipse demonstration, and other Night Sky Network activities.

6. Observing Reports: Roy Troxel and several other members observed at the Broad Creek site on December 29th. They stayed until about 12:30 AM. It was a nice, clear night. Saturn was odd looking to them due to the nearly edge-on appearance of the rings. Roy plans to go out for another session some time the week of January 12th.

7. Old business:

a. Grace Wyatt did a good job sending hard copy newsletters to members without email addresses on file. She included a request for them to send in their email addresses so they could receive the newsletters electronically in the future. All but 2 people did this.

b. The Night Sky Network is releasing a new tool kit in the near future. It will be about telescopes.

8. New business:

a. Gary George is in Harford Memorial Hospital in Havre de Grace. The club members signed a get well card for him.

b. The next round of elections will be in the near future. Nominations for board members and officers will be made at the March meeting. The ballots will go out in April, and the new officers and board members will take office after the May meeting. Tom Rusek has a list of officer duties from the by-laws. He will send it to club members.

c. Grace Wyatt plans to reorganize the office area in the near future. The valuable educational materials need to be more accessible. Anyone interested in helping should contact her.

9. The meeting was adjourned at 7:48 PM.

Club Elections

It is election time for HCAS. If you are interested in running for a position in the club or if you would like to nominate someone, please let Tom Rusek (rusek54@yahoo.com) or Grace Wyatt (dgracew@comcast.net) know before February 5. We will be voting in 4 new Board members.

Duties of Officers, Directors and Technical Advisors

Section 1. President.
The President shall have general supervision of the affairs of the Society. He or she shall serve as chairperson of the Executive Committee and as a member (ex-officio) of Special Committees. He or she shall preside at meetings of the Society and perform other duties as assigned by the Executive Committee. He or she shall submit an annual report on the activities of the Society to the Executive Committee at the Committee's last regular meeting of the year, and to the membership of the Society at the Annual Meeting.

Section 2. Vice President.
The Vice President shall, in the absence of the President, preside at the meetings of the Executive Committee and discharge the duties of the President. He or she shall serve as chairperson of the Program Committee. He or she shall perform other duties which may, from time to time, be assigned by the President with the approval of the Executive Committee.

Section 3. Treasurer.
The Treasurer shall receive all monies and deposit them to the credit of the Society in Depositories as designated by the Executive Committee. He or she shall disburse the funds of the Society as may be ordered by the Executive Committee, obtaining proper vouchers and/or receipts. He or she shall furnish a statement of monthly balances at all regular meetings of the Executive Committee. He or she shall furnish an annual report of the financial status of the Society at the last meeting of the Executive Committee in each fiscal year. This annual financial report shall be audited and certified by two members of the Board of Directors prior to presentation to the membership at the Annual Meeting of the Society.

Section 4. Secretary.
The Secretary shall keep all minutes of the meetings of the Executive Committee, report them at subsequent meetings and keep a permanent file of them. He or she shall receive all membership applications; maintain the membership roster, keeping it up-to-date; and prepare and mail all notices and other pertinent information to the membership. He or she shall forward all monies received to the Treasurer. He or she shall keep a permanent file of all correspondence originated and received by the Society.

Section 5. Board of Directors.
The members of the Board of Directors shall serve as members of the Executive Committee of the Society and assist in the technical, scientific and operational management of the Society. They shall have a vote in all aspects of the operation of the Society.

New Members
January 3, 2009

Please welcome two new members this month. Mark Matysek, who is new to astronomy. He attended our open house on January 3rd and joined at that time. George Gazonas also attended our open house and then joined at our business meeting on the 8th. George is new to the hobby and recently acquired an Orion 10XTi.

For Sale:
Orion SkyQuest XT8
Classic Dobsonian Reflector Telescope

Aperture 203mm; Focal length, f-ratio 1200mm, f/5.9; Weight, assembled = 41.0 lbs. with 2"Crayford focuser, EZ finder II aiming device.

New 10mm Sirius PLÖSSL 1.25" multi-coated lens.

New 25mm Sirius PLÖSSL 1.25" multi-coated lens.

New 35mm 2" Deep View multi-coated 3-element lens.

New Shorty 2x Barlow lens.

New deluxe medium lockable, changeable foam lined, accessory carrying case with shoulder strap.

New telescope padded carrying case.

New Orion® deluxe LaserMate™ collimator.

New Orion® variable polarizing moon filter. Allows adjustment of light transmission from 1% to 40%, with storage case.

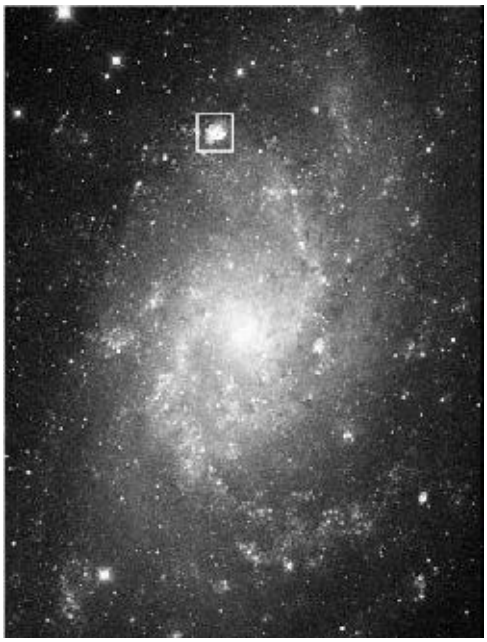
Numerous astronomy reference books, DVD, and sky charts.

Greatly reduced price: $650.00 Contact Richard Lego (410) 917-2924

Observation Reports

Broad Creek

December 22, 2008
5:00pm to 7:00pm



When I arrived at 4:30pm, the temperature was about 23º F, but the skies were unusually clear at that time, so I decided to stay. The seeing was actually good until about 7pm, at which time the Milky Way suddenly became invisible, and even the Double Cluster "lost" about half its stars!

The good news is that I was able to obtain an excellent view of Venus in the twilight, using the #58 green filter. It was slightly gibbous and I could see some gray patches in the cloud layer.

As the sky darkened, I was able to see - briefly - all six stars in the Trapezium in M42, because the eastern sky was still relatively clear. Also got a nice view of the M15 globular cluster in Pegasus, using the 9mm Nagler eyepiece. I was able to see the M2 globular in Aquarius, but then it disappeared in the haze before I could change eyepieces.

Photo: The elusive M33. The slightest haze can knock it out of sight, although it is three degrees in diameter (6 lunar widths). Also note the NGC604 star cloud, in box near top of photo.

Easily split the Double-double star, Epsilon Lyrae, with the 13mm Nagler eyepiece.

Also obtained good views of M52, M103, and M34 – open clusters in Cassiopeia and Perseus. Both constellations were high in the northern sky, away from the developing haze.

Couldn't locate the galaxies NGC7331 or 7320 in Pegasus, because of bad seeing in that area.

I tried for M35, 36, 37, and 38, but only half the stars in these clusters were visible, due to the haze that was forming in the northeastern sky.

This was a brief session, but despite deteriorating seeing conditions, I had been able to find some reasonably clear sections of the sky. I was able to obtain my best view ever of M33, as well as NGC604, a bright star-forming region in one of M33's spiral arms (see photo above). However, when the wind began to accelerate, at about 7:30pm, I decided it was time to pack up for the night.

- Roy Troxel

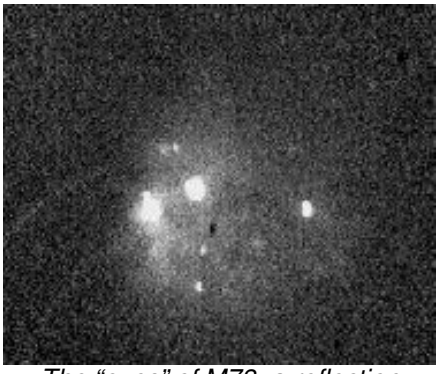
Broad Creek
December 29, 2008

After several weeks of really crummy weather, 12/29/2008 was shaping up to be a really beautiful day. It had deep blue skies, no winds and the temperature was mild, in the low forties. I checked the weather forecast and the clear skies were supposed to hold and transparency was excellent. As usual for us here in Maryland, seeing was a 2/5, which is poor. Having not had a chance to do

any serious stargazing since late October, I was anxious to go to Broad Creek that night. I started making some calls. Roy was agreeable and had already sent out an E-mail. Jimi Hajek was also willing but would not show till later, after work. The others we spoke to could not make it, as most had to work the next day. I was on vacation so this was not an issue for me.

Jimi brought his 8" Dob and Roy had his 12.5" Obsession Dob. I had use of my wife's van this night so I brought my 12" Orion XTi Dob. I also brought along 2 binoculars, to do a comparison test.

I arrived at about 6:00 PM and Roy was already there and was finalizing his set-up. Though I prefer to get to Broad Creek a little before dark, I was a little late so I had to do my set-up in the dark. Also, I had left the house in such a rush I forgot to wear my contacts. I did not realize it till I got to Broad Creek and resigned myself to bumping the eyepiece with my glasses and having reduced fields of view through the eyepieces.



The "eyes" of M78, a reflection nebula in Orion. (U of Arizona Club)

I had problems getting my alignment going. After three tries and no reaction in the altitude and azimuth readings on the hand controller, it finally dawned on me that I had not tightened the knobs that hold the scope on the mount so the encoders were slipping. After taking care of that, I got a good warp factor and the mount "pushed-to" great the rest of the night.

The moon was already behind the trees and I had missed my shot at looking at it. I started off looking at Venus. It was very bright, a little more than half full. Otherwise, it had no other features. It is of modest size, about 20 arc seconds across. Best viewing of Mercury is going to be in early February, when it will be larger and much more of a crescent. I quickly looked at Neptune, which was very close to Venus. Not much to see except for the blue color.

After looking at Alberio, I spent the rest of the night looking at deep sky objects. This was my first time looking at the Great Orion Nebula this year and I spent over an hour looking at it. So long, in fact, that my Intelliscope timed out and shut down and I had to do another alignment when I was ready to move on. I spent the time going through my eyepieces, trying to tease out details of the nebula. It was impressive, with tendrils of nebulosity streaming off in two opposite directions from the main part, like wings. I had no luck seeing stars E & F in the trapezium, though. I took a stab at seeing the Horse Head. I was not expecting to see it and was not disappointed. No hint of the Flame Nebula either. I did see M78, like two eyes looking at me in a little haze.

I also looked at M1, the Crab Nebula, which was very faint. M2 is a globular cluster that is compact and fairly bright. I was able to get M 110, M32 and the core of M 31, the Andromeda Galaxy, in the field of view of my 50mm Axiom. M33 was faint but distinctly visible in this scope. The core was a little brighter than the rest. M50 is a sparse open cluster. M35 is another sparse open cluster with a NGC 2158 right next to it, quite faint. M41 is another cluster but this one is quite bright, as were M44 (the Beehive) and M45 (the Pleiades). Two star clusters in close proximity to each other are M46 and M47. They are a study in contrasts. The former is bright and thin and the latter is dense and dim and has a planetary nebula that is visible with averted vision.

Moving north, I looked at M81/82 and the Double Cluster. I had no luck with M97 (Owl Nebula) nor M108 and M109. I did not even try for M101 or M51.

It was now getting close to 11 O'clock and Leo was rising, with Saturn in tow. It was very close to the horizon and the view was just awful. Saturn was dancing all over the field of view. I did see a

hint of the rings. Regretting that I could not stay much longer, I started packing up. My feet were cold and my toe warmers had petered out.

It was a busy night and I got a lot in. In all this activity, I was also able to notice two things and compare two binoculars. I noted that I was having a problem focusing. Somehow, I just could not get it right and was constantly tweaking the focuser. I blamed it on the poor seeing but was really suspecting that it was collimation. Sure enough, when I checked the scope the next day, it was off.

About a year ago, I had bought a 2" Axiom 50mm eyepiece. It is probably the most expensive eyepiece that I own and I love the wide field views that it offers. Lately I have been a little disappointed in that I sometimes can see the shadow of the secondary in the field of view. It does not really interfere with the view but it is a little distracting. Tonight, I used it to look at both the Pleiades and the Beehive, both of which are large clusters. I was able to see each of them, in their entirety, in the field of view of this eyepiece. That is over a degree and a half of view.

I own two 10 x 50 binoculars. One is an inexpensive Celestron that I keep hanging near the door to take out for a quick look. The second one is a moderately priced Orion that I keep in its case and only use when I go to Broad Creek. I brought them with me to try comparing them. This was a very basic comparison and is very subjective. I used them to look at Messier objects 45, 44, 42, 41, 38, 37 and 36, as well as the Alpha Persei Association (Melotte 20) and the Coat Hanger. First, I did notice that the Orion was better mechanically than the Celestron, being easier to focus and carry, particularly in the cold. The Orion also offered a brighter image, probably due to better coatings implied by the higher cost. Lastly, I felt that I had better contrast with the Orion also, though this is difficult to substantiate. The Celestron had low price going for it, about a third of the price of the Orion, making it suitable for the rough use that I give it.

- Tim Kamel

Broad Creek
Dec. 29, 2008
6:00pm to 12 midnight

When I returned to BC this week, the skies were significantly clearer than they had been the week before, so I decided to re-visit the same objects. I began with Venus low in the Southwest. I used the dark green filter and was able to see the planet in "half" phase, about 55% illuminated. There were some shadings in the cloud layer along the terminator.

While the sky was still darkening, I directed the scope toward M2, a globular cluster in Aquarius, and one of my favorites. This object also was low in the West. It displayed a very compact, round image. The sky was clear enough so that I was able to use my 9 mm Nagler eyepiece and resolve the cluster into several dozen stars. The rest was a white disc. (The cluster is about 36,800 light years away from us, and about 175 light years in diameter.)

The next object I viewed with the 9mm Nagler was M15 in Pegasus. The eyepiece resolved this globular cluster nicely into several dozen stars. Like M2 it has a bright, white core in the middle - another very compact cluster. (It still amazes me that this object is 12 billion years old.) It is about 30,600 light years away, with a diameter of about 130 light years and contains over 30,000 stars.

Next, I aimed the scope into the dim constellation of Camelopardalis, now fairly high in the sky northern sky, between Polaris, Cassiopeia and Auriga. There I observed NGC2403, a beautiful irregular galaxy. On very clear nights, this looks like a mound of sparkling diamond-dust, but tonight it looked rather dim.

The Crab Nebula in Taurus (M1) was rising in the east, but appeared dim, even when I used the UltraBlock filter.

From 9pm to 11pm, I spent most of my time in the southeastern sky, where two "arms" of the Milky Way are visible during January. The “Orion” arm can be seen extending through the constellations of Orion, Canis Major and Puppis. Looking to the northwest, you can see it extending through Cygnus. Additionally, our solar system resides on this arm, along with many clusters and a good deal of nebulosity.

This area of the sky provides many objects for open houses and other outreach sessions:

First on my list was M79, a globular cluster in Lepus, just below Orion. The cluster is unique in that it does not rest on the “plane” of the Orion arm, but above it. Most globulars are concentrated near the center of the galaxy, but this one is by itself, due to some gravitational quirk.

Then it was on to M41 in Canis Major, a bright open cluster, easily observed at low powers with binoculars and small scopes. Larger scopes display curved chains of stars, of different colors.

Moving into Puppis, I found the open cluster M46, with NGC2438, its accompanying planetary nebula. When I attached the UltraBlock filter, I obtained a clearer view of the nebula. It resembles the Ring in Lyra.

M47 (left photo) is another open cluster, close to M46, and much brighter. It is also another great object for binoculars and low powers. Its blue and orange stars provide colorful contrasts.

Then, it was on to Monoceros (pronounced like "rhinoceros"), a dim constellation situated between Betelgeuse and Procyon. *The Night Sky Observer's Guide* notes that: "What it lacks in bright stars, Monoceros more than makes up for in clusters and nebulae. Within it are the often-photographed Rosette Nebula, the Cone Nebula, and Hubble's Variable Nebula. The finest of its many open clusters are M50, the Rosette Nebula's central cluster NGC2244, the Christmas Tree Cluster NGC2264, and the very rich NGC2506." (I wasn't able to observe all of these objects that night, but the winter is just beginning, so there’s plenty of time – weather permitting, of course.)

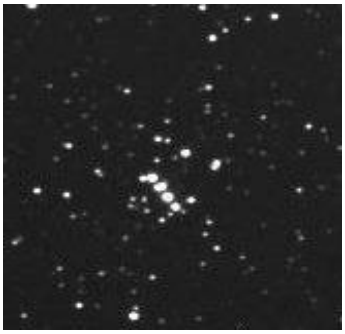
M50 is easily observed with binoculars as a bright concentration of stars. It is especially attractive in larger scopes, using low powers. It is about 2,900 light years away, on the Orion arm. As usual, the 35mm Panoptic eyepiece provided an excellent, glittering view of this cluster.

Next I moved to the open cluster M35 in Gemini, looking for the accompanying star clusters, NGC2158 and IC2157. Using low powers, NGC 2158 appeared more like a nebula than a cluster, to the lower left of M35. Using higher power (120x), however, it was resolved into an open cluster. IC2157 is a smaller cluster, but still resolvable cluster in my 12.5" reflector.

According to *Burnham’s*, M35 is between 2200 and 2700 light years from us, and is about 30 light years in diameter. According to *The Night Sky Observer's Guide*: "Though M35 lacks either a central condensation or well-defined periphery, many of its stars are distributed in attractive gatherings in chains." I used the club's 35mm Panoptic eyepiece on this one.

M67 is an open cluster in Cancer. It would be better known if it weren’t for the Beehive (M44) stealing the “limelight”. It appeared bright and distinctive on this evening. Some facts: 5 billion years old, 2600 light years away and about 15 light years in diameter. Its star “chains” can be seen in larger amateur scopes.

I glimpsed the NGC2903 galaxy through the haze in the East, as Leo was rising. Not much detail, but its distinctive elliptical shape was perceptible.



Both Cassiopeia and Perseus are rich in star clusters and asterisms, which make this area of the Milky Way a pleasure to pan with a wide-angle lens. These two constellations, by the way, reside on to the "Perseus" arm of the Milky Way, which is further out than the Orion arm on which we reside. You will see something different each time you observe along the Perseus arm. For example, while observing M103, I noticed an odd little clump of stars nearby. After later consulting *The Night Sky Observer's Guide*, I learned this group is called *Trumpler 1*. It contains a dozen stars lined up in two distinct rows. (Photo is to the left.)

By 12 midnight, the three of us began packing up. Unusually dark skies had made this an exceptional night. Toward the end of the session, the stars in the South appeared larger and rounder, suggesting the effects of an oncoming haze in that region of the sky. Also the temperature began to decrease perceptibly, so we decided it was time to leave.

- Roy Troxel

Outreach Programs

Open House
January 3, 2009

Finally, decent weather for an open house! It felt like months since the last one. What a great way to start off the New Year.

January 3rd started off as a great day, with nice blue skies. Some clouds drifted in around noon but quickly left and the clear skies continued into the night. The Clear Sky Chart predicted excellent clear skies, excellent transparency and, as usual, poor seeing.

Public participation was the highest I have seen in some time, 71 guests of all ages. This time we also had two firsts. We were visited by an author who wanted to visit the observatory and take pictures so that he can use them as background for his next novel. Second, we had visitor who had found a rock and thought it was a meteorite and wanted us to confirm it for her (it wasn't).

Club participation was again good and included Grace Wyatt, Roy Troxel, Mark Kregel, Tom Rusek, Karen Carey, Phil Schmitz, Paul Sokolowski and Caleb and Matthew Grayson. Gary George and Tony Mullen joined us, though both were recovering from recent surgery.

I again had the pleasure of running the C-14 scope in the dome. It performed well, putting the targets in the center of the eyepiece and tracking very well. The only glitch was when going to the moon. Each time the moon was out of the field of view and I had to center it. Going to the next target was off as a result and I had to center that also. Sounds like a date problem with the moon but I could not take the time out during the open house to start fixing it.

As each group came up, I showed them Venus and the moon as well as Neptune and Uranus. The moon blew every one away with the craters, the mountains and the seas. Venus is a

gibbous disk, slightly more than 50%. Neptune and Uranus were fairly small but the disks and colors were fairly clear at 100 and 150 power.

Time permitting, I also showcased The Great Nebula in Orion/Trapezium, the Andromeda Galaxy, M35 and The Pleiades (a youngster asked for it, even though I was only able to get 3 stars in the narrow field of view). We also had scopes set up on the observatory grounds including those brought by Karen and Paul. Roy set up the SCT from the classroom. Two visitors brought telescopes that they had received and we assisted their owners in getting them set up.

Because of the clear skies, it was a long night. Guests showed up as early as early as 5 PM and we were fairly busy till we finally shut down at about 11 PM.

We could have used a few more members to assist on the grounds and a couple of more scopes downstairs but all in all, an excellent night.

- Tim Kamel

HCAS Astronomy Quiz

This is a quiz on the constellation of Orion:

1. Orion is known as the:
   Hunter Scavenger Prey Cat

2. Orion is completely situated in the northern celestial hemisphere.
   True False

3. The brightest star in the constellation Orion as seen from Earth is:
   Rigel Betelguese Bellatrix Saiph

4. Of the stars listed, which star is closest to our solar system?
   Rigel Betelguese Bellatrix Saiph

5. The three belt stars in order from east to west are:
   Alnitak, Alnilam, Mintaka Alnitak, Mintaka, Alnilam

   Mintaka, Alnilam, Alnitak Alnilam, Mintaka, Alnitak

Answers to last month's quiz:

1. I house one of the brightest globular clusters in the northern hemisphere in my boundaries. I am also a mythological figure with great strength.
   Centaurus Ophiuchus Sagittarius **Hercules**

   Hercules houses M13, one of the finest globular clusters in the night sky.

2. I cover more square degrees in the sky than any other constellation in the sky and I am as sly as a snake.
   Hydra Eridanus Virgo Draco

   Hydra covers 1303 degrees of the sky.

3. I contain one of the summer triangle's stars. I also like to fly.
   Delphinus **Aquila** Lyra Ophiuchus

   Aquila contains Altair, the other two are Cygnus (Deneb) and Lyra (Vega).

4. I have the only known planetary nebula located within a Messier object and I am commonly seen around the racetrack.
   Pisces Perseus **Pegasus** Pavo

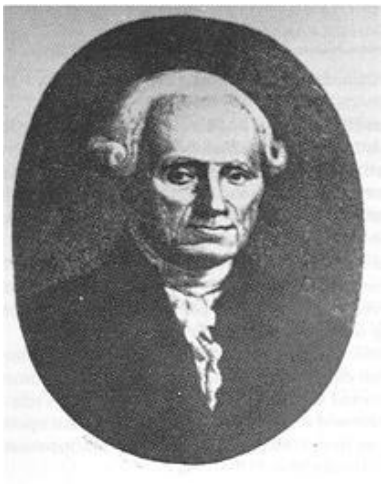
   M15 in Pegasus contains the planetary nebula known as Pease 1.

5. I contain 5 Messier galaxies and I like to roar about them.
   Leo Cygnus Sagittarius Cepheus

   Leo contains M65 and M66, both visible in the same low power field, and M95, M96 and M105 (M105 contains two small NGC galaxies in the same field).

Miscellaneous

Charles Messier, The Man



We all know of the 109 Messier Objects that we track down whenever we can. But how did this list come about? And what do we know about the man himself? And what about those comets he discovered?

Below is a synopsis about Charles Messier. For the most part, I have excluded most of his appointments to committees, organizations and awards. They are too numerous to mention!

Charles Messier was born on June 26, 1730 in Lorraine, France. He was the tenth of twelve children, of which at least six died very young, each probably less than 2 years of age. Contrary to popular belief, he grew up in a wealthy household. His father, Nicholas, died in 1741 when Charles was 11 years old. Shortly thereafter, Charles fell out of a window at their house and broke a leg. Charles was interested in astronomy at a very early age, and when he was 14, a six-tailed comet graced France's sky and this furthered his interest.

When he was 21, he went to Paris, France, to be employed by the Astronomer of the Navy, Joseph Delisle. Delisle and his wife (in their sixties) gave Charles a room in their apartment in Paris. Charles got instructed on the equipment in the Delisle observatory. He learned how to make detailed measurements and how to keep details of his observations.

Charles' first recorded observation was of the transit of Mercury in 1753. In 1757 Charles started to search for Halley's Comet, but due to errors in Delisle's calculations, Charles did not re-discover Halley's Comet. He did however, find another comet on August 14, 1758 that, unknown to Messier, had been discovered several months earlier.

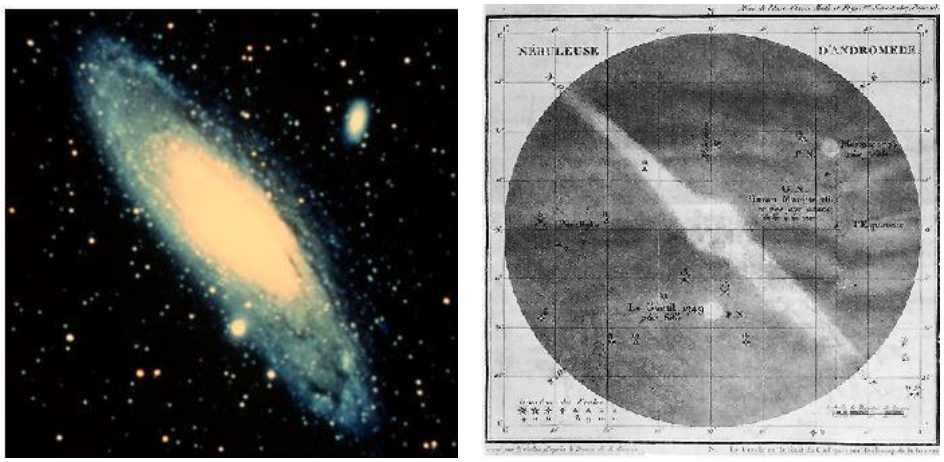
He also found a non-moving object near the southern horn of the constellation of Taurus on August 28, 1758. This object looked like a comet, so he knew it was a nebula. He took measurements of it on September 12, 1758 and it became the first entry (and only supernova) in his famous catalog. (M1 was first discovered by John Bevis in 1731.)

The German astronomer, Palitzsch, re-discovered Halley's Comet on the night of December 25, 1758. Messier re-discovered Halley's Comet on January 21, 1759, after realizing Delisle must have made some mistake in saying where the Comet would be found. Delisle did not want to admit his mistake and refused to publish Messier's observation of Halley's Comet. Delisle finally allowed the re-discovery of Comet Halley to be announced on April 1, 1759, but other French astronomers didn't believe it (maybe because it was April Fool's Day). As communication was slow in that era, it took several months for the German astronomer's report to get to France. The frustration of all of this probably ignited Messier to become a comet hunter in his professional life.

Messier came across another non-comet, M2 (globular cluster in Aquarius), which was previously discovered by Jean-Dominique Maraldi II in 1746. Messier discovered his first independent comet on January 26, 1760 (C/1760 B1). Messier observed the transit of Venus on June 6, 1761 and he saw Saturn's rings in the same year. Messier discovered his second independent comet on Sept. 28, 1763 (C/1763 S1) and his third independent comet on January 3, 1764 (C/1764 A1).

Messier stumbled upon M3, his first actual discovery that went into his catalog of non-comet objects, on May 3, 1764. His notes states this nebula contains no stars! M3 is, of course, a vast

globular cluster of thousands of stars. This shows that Messier's telescopes were rather limited in ability.



A modern photograph of the Andromeda Galaxy compared with Messier's chart from the 1700s. Messier includes the two smaller objects, M32 and M110. Note the grid lines on M's chart: The chart is based on many observations, using different telescopes.

In 1765 Delisle retired and Messier was finally appointed Astronomer of the Navy, but not before 1771. On March 8, 1766 Messier discovered his fourth independent comet (C/1766 E1).

Messier included objects discovered by other astronomers, notably Halley, Derham, Maraldi, LeGentil, Lacaille, Hevelius, Cheseaux, Bode and later on Mechain. Messier knew that the object he numbered M40 was a double star. John Hevelius (in 1660) mentioned a nebula near this position. For some unknown reason, Messier decided to include it in his catalog.

Messier decided in early 1769 to publish a catalog of these non-cometary objects. He added M42 - M45 to this list on March 4, 1769. On August 8, 1769 Messier discovered his fifth independent comet (C/1769 P1). On June 14, 1770 he discovered his sixth independent comet (D/1770 L1).

On November 26, 1770 at the age of 40, Messier married Marie-Francoise de Vermauchampt (age 37). They had known each other for at least 15 years.

On February 16, 1771, he presented his catalog of 45 objects to the Paris Academy of Sciences. Four days later he measured four more objects, M46 through M49. Due to positional errors that he made, M47 and M48 remained missing objects until the 20th century. It is worthy to note that M49 was the first Virgo galaxy cluster member discovered. On April 1, 1771, he discovered another comet, his 7th independent discovery (C/ 1771 G1).

On October 31, 1771, he and his wife moved from Delisle's apartment in the College de France into an apartment within the Hotel de Clugny where the Observatory of the Navy was located. On March 15, 1772, his wife gave birth to a son, named Antoine-Charles. His wife died on March 23, 1772 and their son died on March 26, 1772.

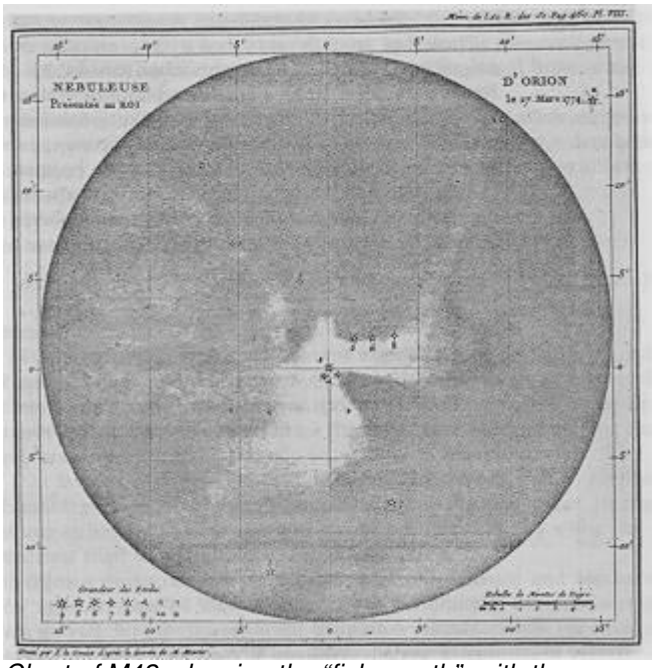


Chart of M42, showing the "fish mouth", with the Trapezium in the center.

On April 5, 1772, Messier added M50 (originally discovered by Cassini) to his list. After this he took a three-month vacation. On August 10, 1773, he discovered what is now known as M110, but he did not catalog it. He discovered another independent comet on October 13, 1773 (C/1773 T1), his eighth.

During 1773, Messier discovered M51 (spiral galaxy in Canes Venatici) and M52, open star cluster in Cassiopeia in 1774). He was not to catalog another nebula until M53 in February of 1777. Messier did believe there was a planet between Mercury and the Sun, and had reported seeing small objects cross the Sun's disk on June 17, 1777. He thought they might just be meteorites or atmospheric in nature.

In 1778 he added M54 and M55 to his growing list and from January to June 1779, Messier noted nine more objects, M56 through M64.

The next two objects M65 and M66 were probably discovered by Messier, but credit is given to his friend Pierre Mechain. After the discovery of M67 and M68, Messier had his second catalog published in 1780, in the French Almanac, Connoissance des Temps. Messier and Mechain continued to work rigorously and by August of 1780, Messier's list was up to M79. Messier discovered his ninth independent comet on October 27, 1780 (C/1780 U2).

By April of 1781 the list was up to M103 and it was published in 1781. Shortly thereafter, Messier added M104 to his list. On March 13, 1781, William Herschel discovered the planet Uranus. Messier got Herschel's note on April 14, 1781, one day past Messier's own deadline for his third catalog.

On November 6, 1781, Messier had a terrible accident. He fell 25 feet into the ice cellar and was seriously injured. He was not up and around until November 9, 1782, a year later.

In August of 1782, William Herschel, with the help of his sister Caroline, decided to compile a more extensive list of objects. Messier did not invest any considerable time in continuing to search for nebulous objects anymore. Perhaps he thought that Herschel's more extensive catalog would be better suited for comet hunters. No one really knows for sure why Messier became less interested in continuing his list.

On January 7, 1785, Messier discovered his tenth independent comet (C/1785 A1) and his eleventh independent comet on November 26, 1788 (C/1788 W1). On July 14, 1789, the French Revolution started and this may have hindered Messier in publishing any new catalog.

Messier discovered his twelfth independent comet on September 27, 1793 (C/1793 S2). He discovered his thirteenth and last independent comet on April 12, 1798 (C/1798 G1).

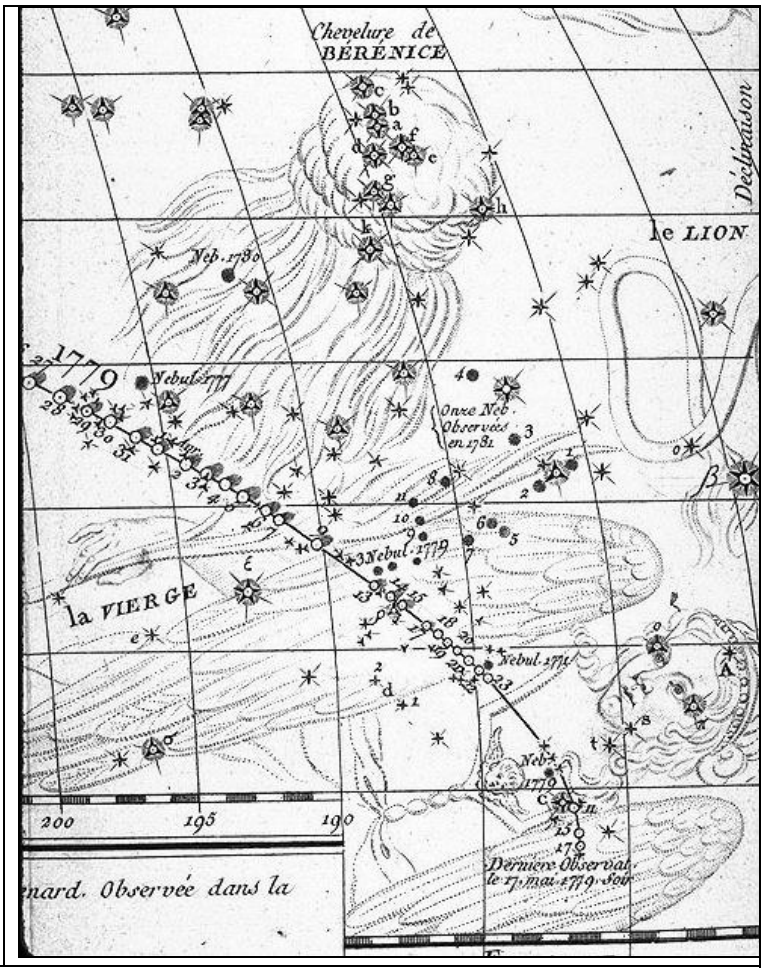
In 1801, Messier took part in observing the occultation of Spica by the Moon. He also did some observations of the newly discovered asteroids Ceres and Pallas.

In 1806 Napoleon decorated Messier with The Cross of the Legion of Honor.

In these later years, with decreasing eyesight, Messier was less and less active in astronomy and in 1815 he suffered a stroke. After a partial recovery, he did attend a couple of more academy meetings. He passed away on the night of April 11/12, 1817 and was buried in the cemetery of Pere Lachaise in Paris.

Objects M105 through M110 were added later as Messier's notes showed he was aware of these other objects.

In addition to his 13 independent comet discoveries and 7 comet co-discoveries, Charles Messier has a lunar crater named after him as well as an asteroid, 7359 Messier. This asteroid was discovered on January 16, 1996. During his lifetime, his friend Jerome de Lalande recommended a constellation be named after Messier to be formed by some stars in Camelopardalis, Cassiopeia and Cepheus. This idea was short lived and obviously to us, it never happened.



Messier's chart of the path of the Comet of 1779, through Coma and Virgo. The numbered dots near the center are objects that Messier didn't want mistaken for comets. (He was unknowingly charting the Virgo Galaxy Cluster!)

By the way, the Southern Hemisphere had their own Charles Messier. John Caister Bennett (Apr 6, 1914 - May 30, 1990) was a comet hunter who lived in South Africa. He published a list of 152 objects that were not to be confused with any comets. He found two comets, including Comet Bennett (C/1969 Y1) which graced the skies in the Spring of 1970. This comet reached magnitude 0 and won't be back for another 1700 years! He has an asteroid named after him. All of the objects are in the Southern Hemisphere, including 26 Messier objects. I wonder if they do Bennett marathons south of the equator?

There is an excellent book on ***The Messier Objects*** by Stephen James O'Meara, the ISBN # is 0-933345-85-9 and it was published by Sky Publishing Corporation in 1998. The book contains information on Messier as well as who and when the 109 objects were discovered (M102 is a duplicate of M101). Data on the type of object, NGC #, constellation, distance, magnitude, photo and a drawing of each object is included along with some descriptive data on each object.

- Phil Schmitz

This newsletter is the official publication of:

Harford County Astronomical Society
P.O. Box 906,
Bel Air, MD 21014.

Items for the newsletter are due to the editor by the 13th of the month of publication.

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