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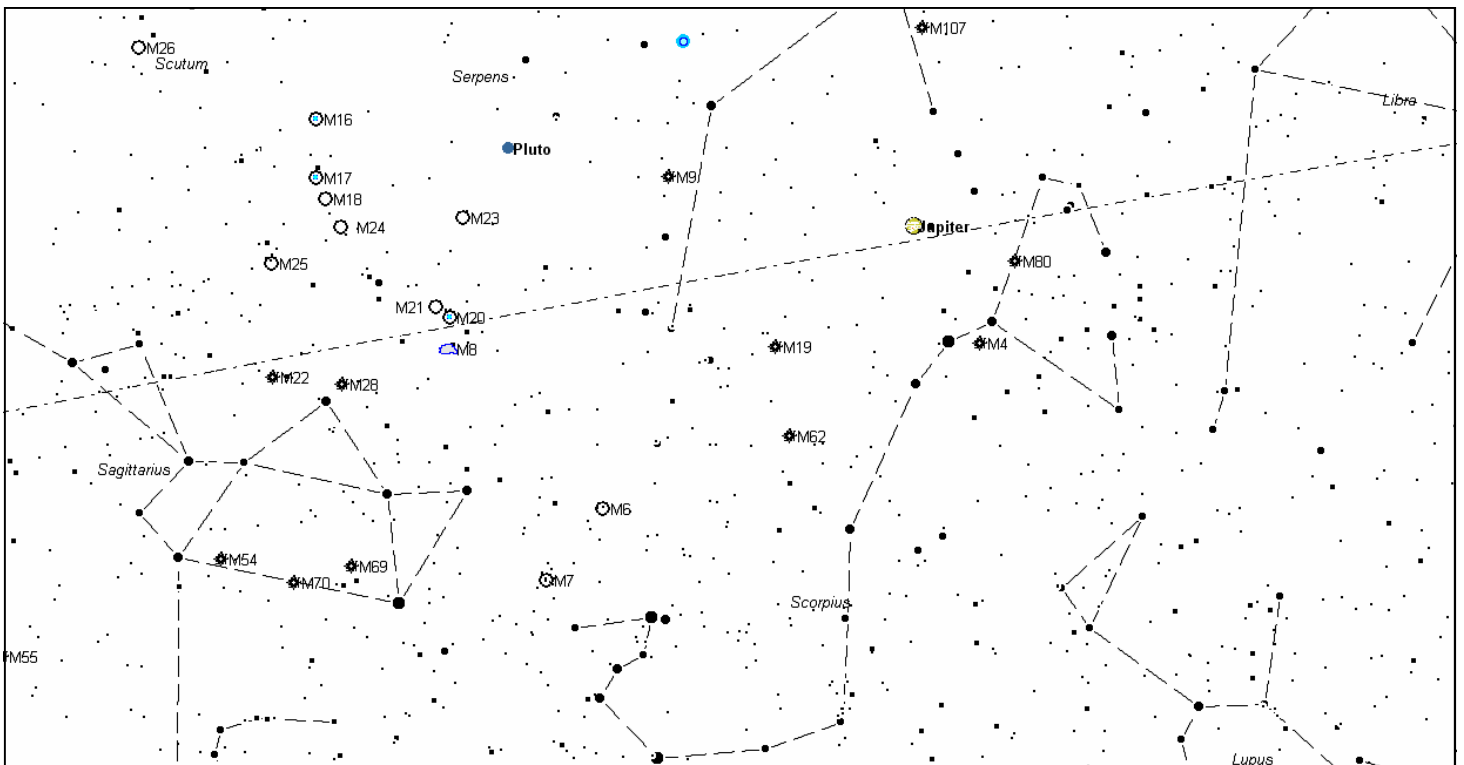
Royal Astronomical Society of Canada
London Centre Newsletter
July 2007

Monthly Meeting at Quai du Vin

Patrick Whelan

In a departure from our normal monthly meetings, we are having our meeting at the Quai du Vin on July 20th. It promises to be a very fun evening for all. Not only do we get to have our meeting, we are also having a star party. I have never been to Quai du Vin myself so it will be a new experience for me. I hope we will have a good view to the south since there is so much to see there! I have included a skymap just below this article. Of course Jupiter is the king of the sky but there are many more great objects to

look at in the vicinity. You will notice a lot of objects that are labeled with an M in front of them. These are Messier objects. They are named after Charles Messier because he catalogued them. There are over 100 Messier objects. They can be any kind of deep sky object: nebulas, galaxies, open clusters, globular clusters. Some are bright and easy to find. Some are dimmer and harder to find. Take a pair of binoculars and scan Sagittarius and then go straight up from there. You will be amazed!



Moon Phases



July 14 2007 12:04



July 22 2007 06:29



July 30 2007 00:48



August 4 2007 21:20

Letter From the Editor

Patrick Whelan

Binoculars. What a concept. You've got two eyes and binoculars give you a small telescope for each. There are many wonderful sights to see in the sky with binocs. Just sweep the Milky Way with them. The amount of stars you see is breathtaking. I remember as a teenager laying on a picnic table looking at the night sky and being amazed at the number of stars I could see in that dark country sky. I took my binocs and couldn't believe how many more stars I could see! Countless thousands or tens of thousands of stars. Scan the southern sky in summer. Star clusters! Wow!

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LONDON RASC MONTHLY MEETINGS

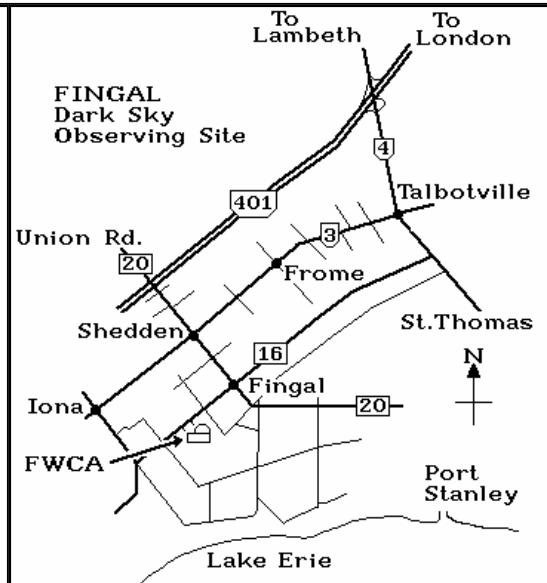
The London RASC group meets at Fanshawe college in London Ontario, September through July on the third Friday of the month at 19:00. They meet in room B1073.

Everyone interested in astronomy is invited to attend and enjoy our guest speaker, member activity and observing reports, announcements of new discoveries and upcoming events, telescopes and telescope accessories show and tell, and other fun activities. Have a look at our future and past activities on our website to see what we are doing.

Parking is free on Friday evenings, and there is plenty of room in the east parking lot off Oxford St. and parking spaces on the south side of B building. Enter the college by B building doors near Oxford Street, just west of the bus stop. College signs at key hallway locations will help you find us.

The London RASC webpage can be found at:

www.rasc.ca/London



Sky Events for May and June 2007

July 20, Mercury greatest elongation W (20°)
July 21, Spica 1.9° N of the Moon
July 25, Antares 0.6° N of the Moon
July 31, Neptune 1.3° N of the Moon
August 3, Moon 1.2° N of the Pleiades
August 8, Moon 1.1° N of Beehive (M44)
August 9, Uranus at opposition
August 10, Regulus 0.2° S of the Moon
August 10, Saturn 0.8° N of the Moon
August 11, Partial solar eclipse
August 13, Mercury 2.0° N of the Moon
August 14, Spica 2.0° N of the Moon



Venus can be seen as a bright object in the southwest sky in the evening.
Venus will be the evening "star" in the spring and summer of 2007.

Saturn shines at magnitude 0.4 in Leo and sets in the evening.

Jupiter is now the most prominent planet and rises in mid evening. The moons are fascinating to observe.

Cronyn Observatory, Saturday, June 9th, 2007

Bill Gardner

The Open House at Cronyn Observatory was a great success. As there was a star party for the Girl Guides, Bob Duff was not at Cronyn and I took his place. The Faculty was represented by Carol Jones who gave the presentation, while the 25.4cm refractor in the dome was manned by Aaron Sigut. Richard Gibbens and myself were the only two London Centre members present. Richard helped out by showing some of the many visitors to Cronyn tonight, Jupiter through the Centre's 25.4cm dobsonian, even though the collimation of the scope appeared to be off.

Aaron trained Cronyn's scope on Saturn in the dome.

The crowd favourite though seemed to be the views of Saturn through my Tele Vue Genesis on the Observatory's sidewalk at 200x magnification using a 2.5mm eyepiece. The reactions ranged from the audible "WOW" to actually questioning me if I was simply showing a slide of the planet.

The best part of the evening for myself though was the reaction of the kids, many of who upon leaving the eyepiece returned to the back of the line, just to get another look, even though they were not being rushed away from their initial look.

Carol estimated that there were over a hundred visitors and from the sidewalk, I can confirm that it seemed as though people were continuously arriving, right up until the moment the doors of the observatory were locked.

All in all, a great night was had by all.

Sky and Telescope Subscriptions

Sky & Telescope subscriptions are available at a discounted rate through the London Centre. The cost is \$39.95USD instead of the normal \$49.95USD subscription rate. Please see Bill Gardner for details.

Camp Sylvan Star Night

June 21, 2007

By Robert Duff

Thursday night, June 21st, we had a star night at Camp Sylvan (southwest of Parkhill) for some 30 grade-6 students with accompanying adults from Seaforth Public School. Dave McCarter made a digital slide presentation (updated from the one he gave at Longwoods Conservation Area) in the Bunkhouse, featuring the planets visible in the sky that evening, stars, galaxies and other celestial objects and images from Apollo Moon landings.

The sky was unbelievably clear and we observed the Moon and the planets Venus, Saturn and Jupiter. Dave McCarter also reported observing M51, M13 and M57. The students were most impressed. However, the most awe-inspiring site of the evening was the International Space Station followed by the Space Shuttle Atlantis. Dave McCarter predicted the ISS pass to begin in the west northwest sky at 21:38:40 (9:38:40 p.m.) with the elevation being some 74 degrees to the southwest and passing across the sky heading southeast. It was followed some minutes later by the Shuttle Atlantis.

Many thanks to Dave McCarter for the slide talk, observing with commentary, and for bringing his 25.4-cm Dobsonian. Thank you to Rick Saunders for bringing his 80mm refractor for some excellent views. I brought my 20.3-cm Dobsonian. Everybody was very appreciative of what we showed them.

Cronyn Observatory Open House

June 2, 2007

By Robert Duff

Saturday, June 2, was the Cronyn Observatory's first "Open House" of the summer season. Fraser McCrossan, Bill Gardner, Harold Tutt, Richard Gibbens and me joined Astronomy Faculty members, Professors Els Peeters and Jan Cami for a star night under partly cloudy skies at the Cronyn Observatory. Els Peeters delivered the slide / talk presentation in the lecture room while Jan Cami operated the big 25.4-cm refractor in the dome.

With Jan's help I hauled out the RASC London Centre's 25.4-cm Dobsonian from the storage room and set it up on the Observatory's roof patio. I also assisted Richard Gibbens with setting up his new 20 X 80mm binoculars with its tripod. Fraser McCrossan set up his 80mm alt-azimuth mounted refractor and Bill Gardner his 101mm refractor with its Losmandy equatorial mount on the walkway in front of the Observatory.

We had several dozen visitors. On the roof patio, I showed people the planet Venus, at first quarter phase, Saturn and the stars Vega, Mizar and Alcor. I used my 7mm Nagler eyepiece by itself and in combination with my 2X Meade Barlow lens to obtain magnifications of about 163X and 326X. Saturn looked good at 163X, with the moons Titan and Rhea visible to the celestial west, preceding the planet as it drifted across the field of view. However, the image

seemed not quite as good at 326X and was difficult to track at this high power.

On the walkway in front of the Observatory, Fraser McCrossan reported showing people Venus early in the evening and later Saturn through his 80mm refractor. Still later on he showed a few people the companion of Polaris and then spent some time moving the telescope around to keep Saturn in view above the trees. Bill Gardner reported having his 101mm refractor for the most part on Saturn, using the 2.5mm eyepiece. He later switched to Mizar and Alcor, using a 13mm eyepiece, after Saturn disappeared behind the trees. Harold Tutt remembers Bill, Fraser and himself entering a discussion with a husband and wife regarding various types of telescopes used by RASC London Centre members and inviting them to Fingal on any clear night for viewing. Harold, Bill and Fraser also advised them of the monthly meetings at Fanshawe College.

The observing ended at around 11:00 p.m. and we went to the Dairy Queen for further discussion. Many thanks to Fraser McCrossan, Bill Gardner, Harold Tutt and Richard Gibbens and Astronomy Faculty members, Professors Els Peeters and Jan Cami for an enjoyable evening of explaining astronomy and showing people the stars and planets.

Cronyn Observatory Open House

June 23, 2007

By Robert Duff

We had clear skies for the Hume Cronyn Observatory Open House on Saturday, June 23rd. When I arrived around 8:00 p.m., Bill Gardner had already set up his 101mm Tele Vue Genesis refractor with its Losmandy mount on the walkway in front of the Observatory. Fraser McCrossan arrived shortly thereafter with his 80mm alt-azimuth mounted refractor, which he set up on the front lawn. Cheri McCracken arrived and also set up her 20.3-cm SkyWatcher Dobsonian on the front lawn. We were able to see Venus, without optical aid, in the bright early evening sky from the Observatory's front lawn.

I hauled out the RASC London Centre's 25.4-cm Dobsonian from the storeroom in the dome and set it up on the Observatory's roof patio. Dave McCarter also arrived and we spent most of the evening on the roof patio operating the 25.4-cm Dobsonian and explaining things to visitors.

Astronomy faculty member Professor Paul Wiegert gave the slide / talk and graduate student Meghan McGill operated the 25.4-cm refractor in the dome. Meghan directed the big refractor towards Venus where it remained for most of the evening. On the roof patio, Dave and I directed the 25.4-cm Dobsonian towards Venus, which appeared as a bright crescent at 163.3X, using my 7mm Nagler eyepiece. Dave managed to locate Saturn to the left of Venus, using his 32mm Plossl eyepiece (36X), despite the fact that it was still invisible to the unaided eye in the early evening twilight. The

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view of Saturn, once again using the 7mm Nagler eyepiece (163.3X), improved as the sky got darker. We also looked at the Moon, which looked sharp and detailed at 163.3X. I pointed out to visitors the dark line of the Straight Wall. People were impressed by the numerous craters. Finally we looked at Jupiter with its four Galilean moons. Interestingly, because of its relatively low position in the southern sky, the cloud belts were just subtly visible on Jupiter's surface.

As the sky got darker, we pointed out to visitors the Big Dipper and the stars Polaris, Arcturus and Spica. In my discussion with one visitor I pointed out the Summer Triangle of Vega, Deneb and Altair in the constellations of Lyra, Cygnus and Aquila. Dave directed the telescope to the orange and blue double star Albireo and to the globular cluster M13 in Hercules. M13 appeared as a bright smudge with the 32mm (36X) and resolved into stars with the 7mm Nagler (163.3X.). Dave also managed to locate M13 in the Observatory's 25.4-cm refractor.

Cronyn Observatory Open House

June 30, 2007

By Robert Duff

Saturday, June 30th, was another evening of perfect clear skies for stargazing. When Fraser McCrossan and I arrived around 8:00 p.m., Bill Gardner had already set up his 101mm Tele Vue Genesis refractor with its Losmandy mount on the northern edge of the Observatory's front lawn—a good site from which to observe Jupiter in the southeast.

Doctoral student Wolfgang Dapp was there to give the slide / talk and graduate student Teznie Pugh operated the 25.4-cm refractor in the dome.

Fraser assisted me in setting up my 20.3-cm Dobsonian on the roof patio. Then we hauled out the RASC London Centre's 25.4-cm Dobsonian from the storeroom in the dome and set it up on the Observatory's roof patio. Fraser had brought some eyepieces, which he used with the London Centre's 25.4-cm Dobsonian. Richard Gibbens, who had arrived a little earlier, joined us on the roof, bringing his 32mm and 9mm eyepieces. Gary Hinks also arrived and made his appearance on the roof patio a little after 9:30 p.m. Gary set up his 80mm altazimuth refractor on the front lawn.

I directed my 20.3-cm Dobsonian at Venus when it appeared in the western sky, framing it in the field of view with the 25mm eyepiece 49X and then using the 7mm Nagler (174.3X). Venus appeared as a bright white crescent at which visitors marveled as I explained that the planet was shrouded in clouds of sulfuric acid. Graduate student Teznie Pugh also directed the Observatory's 25.4-cm refractor in the dome at Venus.

As twilight settled in, I located Saturn in my 6 X 30mm finder scope about a degree above Venus. Visitors were impressed by the view of the small orb of distant Saturn at 174.3X.

There were a lot of visitors—adults and children—and I made sure that I had cycled through most of them before moving from Venus to Saturn.

Fraser directed the 25.4-cm Dobsonian towards Jupiter as it made its appearance in the southeast. I also directed my telescope at Jupiter, which appeared as a large bright disk with subtle cloud belts at 174.3X. The four Galilean moons preceded the planet to the celestial west as it drifted across the field of view. I think people were most impressed by Jupiter because it appeared so large and bright with its moons. Other objects I observed through the night were the Double-Double Epsilon Lyrae, the Ring Nebula (M57), the orange and blue double star Albireo and the globular cluster M13. Fraser also directed the 25.4-cm Dobsonian at some of these objects. The full Moon rose sometime before 11:00 p.m. but I was unable to view it through my 20.3-cm Dobsonian telescope because of the roof patio wall.

Dave McCarter also arrived and was soon explaining much about astronomy to a group of visitors gathered on the east end of the patio where Fraser had set up the London Centre's 25.4-cm Dobsonian.

We closed down the observatory around 11:10 p.m. Dave McCarter estimated that we had about 100 visitors that evening. I would like to thank RASC London Centre members Bill Gardner, Fraser McCrossan, Gary Hinks, Dave McCarter and Richard Gibbens as well as graduate students Wolfgang Dapp and Teznie Pugh for a truly great star night at the Cronyn Observatory.

We closed down the observatory around 11:10 p.m. Paul Wiegert estimated that we had about 80 visitors that evening. Bill, Fraser, Dave and I went to the Dairy Queen for further discussion. I would like to thank RASC London Centre members Bill Gardner, Fraser McCrossan, Dave McCarter and Cheri McCracken as well as Astronomy faculty member Professor Paul Wiegert and graduate student Meghan McGill for an excellent star night at the Cronyn Observatory.

Cronyn Observatory Open House

July 7, 2007

By Robert Duff

Ingrid Hutchinson-Young took over for me at the Cronyn Observatory on Saturday, July 7th. Bill Gardner, Fraser McCrossan, Dave McCarter and Richard Gibbens joined Ingrid at the Cronyn. Astronomy Faculty member Dr. Margaret Campbell-Brown made two slide presentations, while Dr. Peter Brown showed the public views of Jupiter and its moons through the big 25.4-cm refractor in the dome.

Bill, Fraser and Ingrid set up their telescopes on the walkway in front of the Observatory, while Dave McCarter set up the RASC London Centre's 25.4-cm Dobsonian on the roof patio. Ingrid showed visitors the planet Venus, which appeared as a crescent, Jupiter with its four Galilean moons and the star

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Vega in her 8-inch SkyWatcher Dobsonian. Several children learned how to direct Ingrid's Dobsonian towards Jupiter, using the red-dot finder. Everybody encouraged the visitors to consider coming out to Quai du Vin for our next meeting as well as our September meeting at Fanshawe College.

Ingrid reported that members enjoyed the evening and that it was quite warm and comfortable outside. Dave McCarter went out to Fingal after the Observatory closed down at 11:00 p.m.

Many thanks to Fraser McCrossan, Dave McCarter and Richard Gibbens for making the Cronyn Open House a success. I would especially like to thank Ingrid Hutchinson-Young for taking my place as coordinator. I would also like to thank faculty members Margaret Campbell-Brown and Peter Brown for a great night of slide presentations and public viewing through the big 25.4-cm refractor in the dome.

Cronyn Observatory Open House

July 14, 2007

By Robert Duff

The weather cleared in the early evening after a rainy overcast and unpromising day. I arrived at the Cronyn Observatory a little after 8:00 p.m. and was greeted by graduate student Mike Attard and Professor Martin Houde. The RASC London Centre's 25.4-cm "Marques" Dobsonian was hauled out of the storage room and set up on the Observatory's roof patio by around 8:15 p.m.

Clouds from the northwest still seemed threatening as Professor Houde began his interesting slide / talk on submillimetre astronomy to a number of visitors. More people arrived during the course of the presentation until we had about 50 visitors in the lecture room.

Dave McCarter arrived around 8:50 p.m. and we went up to the roof patio. Dave saw Venus in the bright evening sky but it was too low above the Engineering building for the Dobsonian. As visitors came upstairs, Dave helped Mike Attard get the 25.4-cm refractor dome and directing it towards Venus, which appeared as a crescent. Shortly thereafter Dave noticed Jupiter in the southeastern sky and directed the 25.4-cm Dobsonian towards. I had my 25mm (46X) eyepiece in the Dobsonian and we got a pleasing view of Jupiter faint cloud belts noticeable on its surface and 2 of the Galilean moons visible, preceding the planet as it drifted westwards across the field of view. Peter Jedicke arrived around 9:07 p.m. with his hand-held binoculars.

As the sky got a little darker I swapped the 25mm eyepiece for my 7mm Nagler (163X). Jupiter's cloud belts were more obvious and we soon observed a third Galilean moon to the east and following Jupiter. People were impressed with Jupiter both at 46X and at 163X.

Other objects that we observed with the 25.4-cm Dobsonian were the Double-Double Epsilon Lyrae and the orange and blue double star Albireo. The Double Double Epsilon Lyrae was observed at 46X and split into two close binary systems at 163X. Albireo was a pleasing view at 46X.

Finally, Dave McCarter located Comet C/2006 VZ13 LINEAR high overhead in the constellation Draco. It was the faintest of faint fuzzies in the city brightened sky.

As the visitors vanished we packed up to close the Observatory around 10:53 p.m. It was a great evening despite the day's unpromising weather. Many thanks to Dave McCarter and Peter Jedicke as well as to graduate student Mike Attard and Professor Martin Houde for a very enjoyable evening showing visitors the stars at the Cronyn Observatory.

Quotes

(supposedly from Albert Einstein)

A person who never made a mistake never tried anything new.

An empty stomach is not a good political adviser.

Any fool can make things bigger, more complex, and more violent. It takes a touch of genius-and a lot of courage-to move in the opposite direction.

Any man who reads too much and uses his own brain too little falls into lazy habits of thinking.

Common sense is the collection of prejudices acquired by age eighteen.

Do not worry about your difficulties in Mathematics. I can assure you mine are still greater.

Education is what remains after one has forgotten what one has learned in school.

Everything should be as simple as it is, but not simpler.

Force always attracts men of low morality.

Great spirits have always encountered violent opposition from mediocre minds.

I am enough of an artist to draw freely upon my imagination.

I am not only a pacifist but a militant pacifist. I am willing to fight for peace. Nothing will end war unless the people themselves refuse to go to war.

2

Jupiter: King of the Gods

2

Patrick Whelan

Mythology

Jupiter was the King of the Gods for the Romans and the ruler of Olympus. He was son to Saturn and brother to Poseidon, Hades, Neptune and Juno, who was also his wife. He overthrew his father Saturn and drew lots with his brothers Poseidon and Hades to see who would rule the gods. To the Greeks he was called Zeus. His translated name literally means 'sky'. He controlled various atmospheric phenomena such as rain, storms, thunder and lightning. The name Jupiter was also the original namesake for the day we call Thursday. His sacred animal was the eagle and he was usually portrayed holding or throwing a lightning bolt.

Jupiter would often disguise himself as a bird or animal in order to sleep with other women. Usually, when Juno found out about the affair, she would severely punish the woman.

Planet Facts

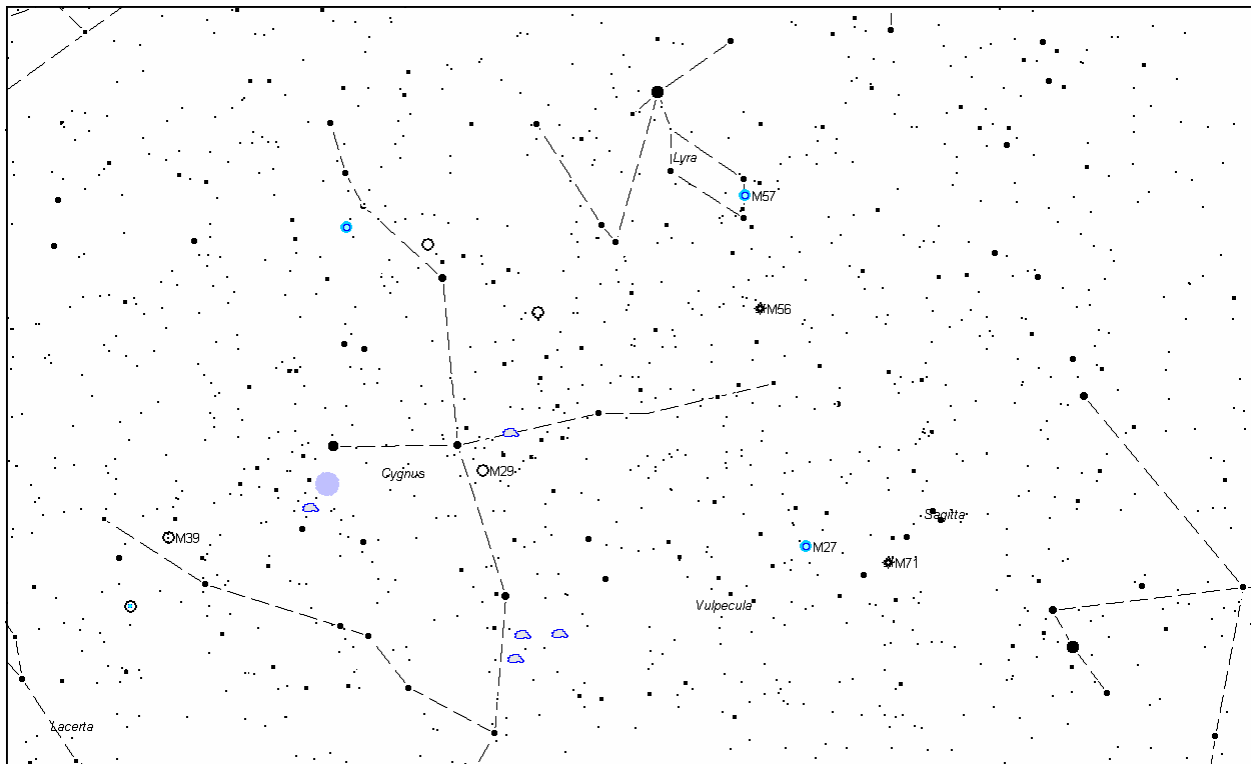
Mass (kg) 1.898×10^{27}
 Diameter (km) 142,980
 Mean density (kg/m³) 1330
 Escape velocity (km/s) 214,300 km/h
 Average distance from Sun 5.202 AU (778,330,000 km)
 Rotation period 9.92 hours
 Revolution period (length of year in Earth years) 11.86
 Obliquity (tilt of axis degrees) 3.1
 Orbit inclination (degrees) 1.30
 Orbit eccentricity (deviation from circular) 0.049
 Visual geometric albedo (reflectivity) 0.52
 Atmospheric components:
 ~86% Molecular hydrogen
 ~13% Helium
 0.1% Methane
 0.1% Water vapor
 0.02% Ammonia
 0.0002% Ethane
 0.0001% Phosphine
 <0.00010% Hydrogen sulfide

Spacecraft to Jupiter

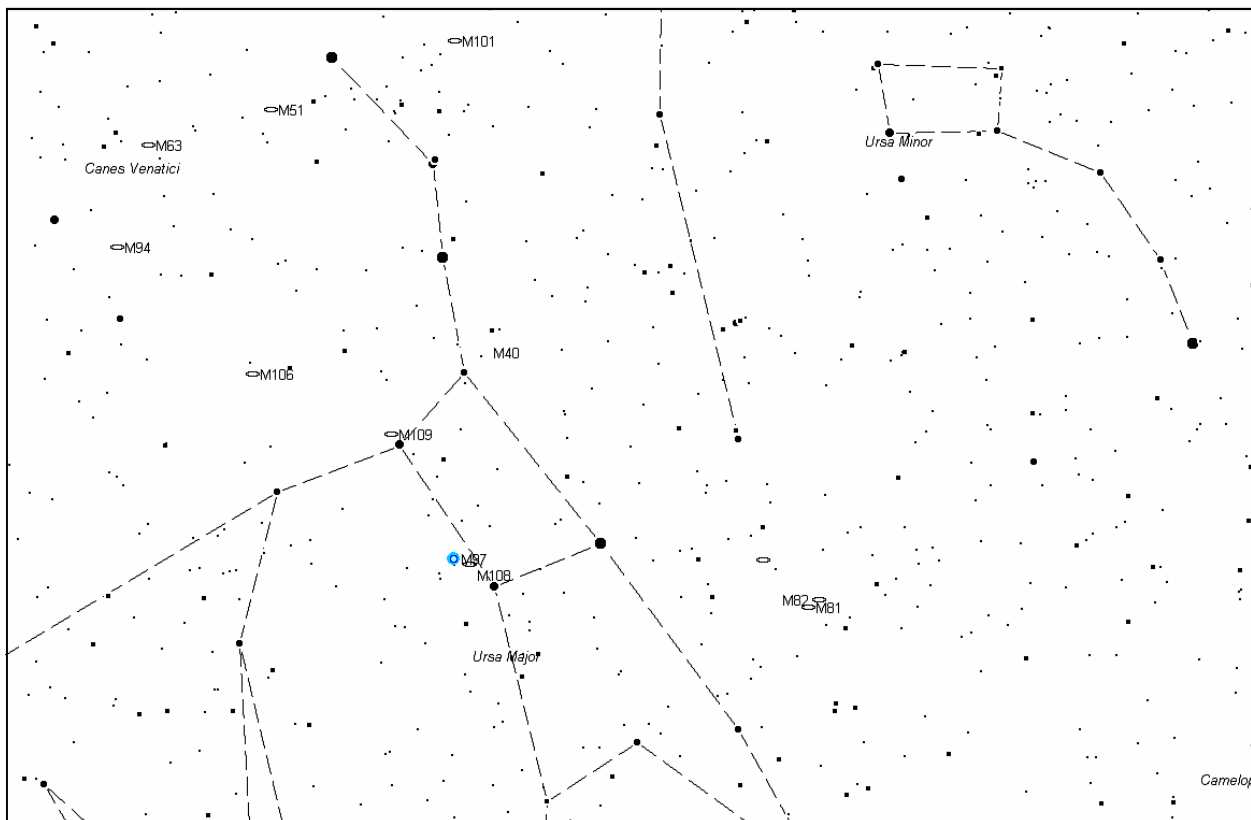
Jupiter was first visited by Pioneer 10 in 1973 and later by Pioneer 11, Voyager 1, Voyager 2 and Ulysses. Voyager 1 and 2 viewed Jupiter in 1979. They discovered Jupiter's rings. A torus of ionized atoms was discovered along Io's orbital path, and volcanoes were found on the moon's surface, some in the process of erupting. The spacecraft Galileo orbited Jupiter for eight years. It had multiple flybys of all of the Galilean moons. The spacecraft also witnessed the impact of Comet Shoemaker-Levy 9. An atmospheric probe was released from the spacecraft in July 1995 and entered the planet's atmosphere on December 7. It parachuted through 150 km of the atmosphere, collecting data for 57 minutes, before being crushed by the atmospheric pressure. In 2000, the Cassini probe flew by Jupiter and provided some of the highest-resolution images ever made of the planet.

Jupiter is still regularly observed by the Hubble Space Telescope. The Galileo spacecraft had a probe that entered the Jovian atmosphere. It found that there was less water than expected and also that the uppermost parts of the atmosphere were hotter and more dense. In July 1994, Comet Shoemaker-Levy 9 collided with Jupiter with spectacular results. The effects were clearly visible even with amateur telescopes. The debris from the collision was visible for nearly a year afterward with HST.





The above sky chart is roughly overhead around 10:30PM July 20. Cygnus “The Swan” is easy to see as a cross in the sky. The constellation Lyra has the star Vega at the top of it, and Vega is a very bright star. The object M57 is called the Ring Nebula and is wonderful to see in a telescope. It looks just like a smoke ring!



The above chart is of the big and little dippers. M51 is the famous Whirlpool Galaxy and is great to see in a larger telescope. M82 and M81 are the sky’s brightest pair of galaxies and they are bright enough to see in smaller telescopes and close enough to see them both in the same field of view.