
Reflections *anotcarit*

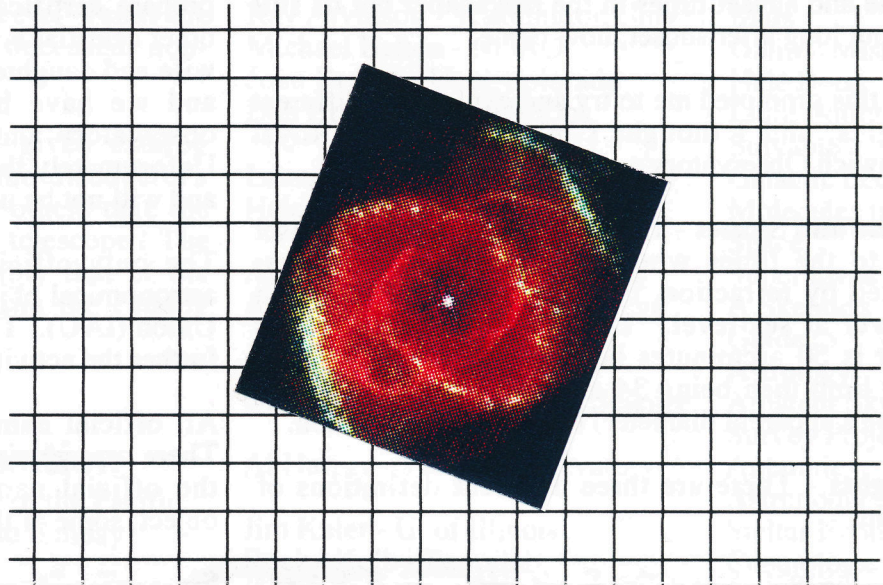
of the University Lowbrow Astronomers

June 1997

WOW ! - The Lowbrow's first ever color newsletter. And we did it the Lowbrow way - low tech and low cost.

Special Thanks to Observatory Director Bernard Friberg for printing the HST color images.

The famous "Cat's Eye" Nebula, NGC 6543, flies high in the northern constellation Draco. 8.5 mag, 16" x 22"



The University Lowbrow Astronomers

The University Lowbrow Astronomers is a club of Astronomy enthusiasts which meets on the third Friday of each month in the University of Michigan's Physics and Astronomy building (Dennison Hall, Room 807). Meetings begin at 7:30 pm and are open to the public. Public star parties are held twice a month at the University's Peach Mountain Observatory on North Territorial Road (1.1 miles west of Dexter-Pinkney Road; further directions at the end of the newsletter) on Saturdays before and after the new Moon. The party is canceled if it's cloudy or very cold at sunset. For further information call (313)480-4514.

This Month:

June 7 - Public Star Party at Peach Mountain Observatory - Annual feeding of Peach Mountain's mosquitos begins.

June 5 - New Moon at 3:03 am EDT

June 20 - Meeting at 807 Dennison - Introduction to Aided Visual Astronomy by Mark Deprest and Mark Vincent.

June 22 - Tentative ATM Meeting 2:00 pm cleaning of the Peach Mountain Observatory.

June 28 - Public Star Party at Peach Mountain Observatory - Hey it's a solstice party !

Next Month and beyond:

July 4 - New Moon at 2:40 pm EDT & Independence Day :-)

July 5 - Public Star Party at Peach Mountain Observatory - Still time to bag Mars in the southwest sky.

July 18 - Meeting at 807 Dennison - TBD

Aug 2 & 9 - Public Star Party at Peach Mountain Observatory - Jupiter at mag. -2.8 and opposition.

Mark Explains

by Mark Deprest

SUNRISE/SUNSET AND TWILIGHTS - At the last public open house I was asked to explain why it took so long to see any stars. I started to go into the light-pollution issues and how all of the unshielded lights were robbing us of our night skies and the persons who had asked me the question stopped me and said, "No, that's not what we meant. We see sunrise and sunset times in the newspaper but its still light out long after sunset, how come?"

Well, this prompted me to try and explain the different twilights, and I thought I might share the Royal Greenwich Observatory's official definitions.

Sunrise and Sunset - The times of Sunrise and Sunset refer to the times when the Sun's upper limb, as affected by refraction, is on the true horizon of an observer at sea-level. This occurs when the Sun's center is 50 arcminutes below the true horizon, the upper limb then being 34 arcminutes just more than the Sun's apparent diameter) below the true horizon.

Twilights - There are three different definitions of twilight.

Civil Twilight, when the Sun's center is 6 degrees below the horizon, is roughly equivalent to between 30 and 60 minutes after sunset. The brightest stars are visible and at sea the horizon is clearly defined.

Nautical Twilight, when the Sun's center is 12 degrees below the horizon, is to all intents and purposes the time when it is dark. For nautical purposes it is that time when the horizon ceases to be clearly visible and it is impossible to determine altitudes with reference to the horizon.

Astronomical Twilight, when the Sun's center is 18 degrees below the horizon, is when it is truly dark and no remnant of the Sun's afterglow can be seen. It is possible to see the Zodiacal light which comes from light from the Sun reflected by small particles between the Earth and the Sun; this can be mistaken for the Sun's afterglow.

Quotable Quote:

*"I sure enjoyed that article by Mark.
I wish I could get some more."* - Anonymous

[I'll see what I can do. - Jr. ED, CS]

Mark Explains Again

again by Mark Deprest

THE NAMING OF ASTRONOMICAL OBJECTS - A friend of mine asked me why the comet's name was "Hale-Bopp" and people at the public open houses are always asking if and why something has a particular name. Well, here is the Official poop!

There are commercial firms who will, for a sum, prepare certificates which appear to name a star, or other celestial body, after someone living or dead. My wife and daughter got me one of these for my birthday and we have had a few people come up to the observatory and ask us to show them "their star." Unfortunately the name so-given has no authorization and will not be used by astronomers.

The only official body which can give names to astronomical objects is the International Astronomical Union (IAU). The IAU has asked astronomers not to further the activities of these firms.

All official names have to be adopted by the IAU. There are certain rules which have to be followed in the official names allocated to different types of object; some of these are outlined below.

Stars - Traditional names for the brightest stars come from the old Arabic names. Some bright stars have either Flamsteed numbers or Greek letters assigned originally by Bayer. Other stars are generally catalog number. There is a very small number of stars which are named after individual astronomers. This is in honor of the named astronomer's outstanding work on that particular star.

Comets - Comets are named after their discoverers. Sometimes there is more than one independent discoverer and the comet then generally bears their combined names. In addition to this name comets are given a provisional number which indicates the year of discovery and their order of discovery. Later a permanent number is given which indicates the year of perihelion passage and the order in that year.

Minor planets - The naming of minor planets is complex. The earliest discoveries were given names from classical mythology and from contemporary life. Nowadays the privilege of naming a new minor planet rests with the discoverer. Each is also given a provisional number indicating when it was found and, after its orbit has been determined, it is given a permanent number. Providing that there is no duplication more or less any name may be used (for instance the 4 members of the Beatles have minor

planets named after them and the John Le Carre character, Smiley, has been suggested for the furthest known minor body in the solar system).

Planetary and lunar features - The naming of the features on the various planets and their moons has been undertaken using different themes for each with attempts being made to keep the themes within some kind of framework. For example, all of Jupiters satellites are named after mythical loves of Zeus, the moons of Uranus are fairies and/or Shakespearean women and the features on the surface of Venus are all named after famous women (all deceased, non-political and non-religious).

Other Objects - Other objects are given catalog names. Some of the catalogs have the discoverer's name (The Messier Catalog), while others take the name of the discovering institution or telescope (The Hubble Guide Star Catalog), or simply that of the person or people or institution making the catalog (The Caldwell Catalog).

Universe '97

An Astronomy Exposition

Hosted by The Astronomical Society of the Pacific (ASP) June 28 & 29, Saturday and Sunday

We invite astronomy and space enthusiasts of all ages to join us for this event-filled weekend, which is part of our week-long astronomical meeting and is cosponsored by ASTRONOMY Magazine. Two days of talks and seminars on new developments in astronomy by professional and amateur astronomers, history talks on nearby Yerkes Observatory, a Family Fair, an exhibit hall, author book signings, raffles and door prizes are all part of the weekend's activities. UNIVERSE '97 offers something for every level of understanding.

The ASP never fails to provide a stellar lineup of speakers during the weekend which is made up of over 30 professional and amateur astronomers. Along with so many great lectures, there will be a hall full of demonstrations and exhibits of astronomical instruments, photographs from Hubble Space Telescope, software, publications, observing aids, gifts, and astronomical organizations.

Also part of the weekend, is the Family Fair which offers many demonstrations and hands-on activities, such as comet making and a moon phase flip book. These activities and more, are geared for kids, their families, and educators who might want to get ideas for their students back in the classroom. The Chicago

Academy of Sciences, Lakeview Museum of Arts and Sciences, and a children's author will all provide assistance with these demonstrations. There will be a full schedule of activities both Saturday and Sunday. The Family Fair is fast becoming a very popular part of the weekend, as it demonstrates how learning astronomy and science can be non-intimidating and extremely enjoyable.

General Session Speakers, Universe '97

Speaker - Affiliation	Topic
Ray Arvidson - Washington Univ.	Mars
Michael Belton - NOAO	Galileo Mission
John Brandt - U. of Colorado	Hale Bopp
Dan Brocio - Whipple Obs.	Light Pollution: Solvable
Laura Danly - STScI/Pomona	Galactic Ecology
Helene Dickel - U. of Illinois	Molecules in Space
Alex Filippenko - UC Berkeley	Supernovae
Andy Fraknoi - Foothill College	A Skeptic's Guide to Astrology
Glen Gombert - Computer Science Corp.	Amateur Sky Survey Project
Al Harper - Yerkes Observatory	Antarctic Astronomy
Jim Kaler - U. of Illinois	Stellar Evolution
Rocky Kolb - Fermilab	Cosmology
Rich Kron - U. of Chicago/Yerkes	Sloan Digital Sky Survey
Mario Mateo - U. of Michigan	Dwarf Galaxies
David Morrison - NASA Ames	The Threat of Asteroid Impacts
Robert Morse - U. of Wisconsin	Neutrino Astronomy
Bob Naeye - Astronomy Magazine	Extrasolar Planets
Leif Robinson - Sky & Telescope	CCD and Computer Tech
Scott Sandford - NASA Ames	Meteorites from Mars
Seth Shostak - SETI Institute	SETI
David Slavsky - Loyola of Chicago	Physics of Baseball
Rich Talcott - Astronomy Magazine	Upcoming Celestial Events
Virginia Trimble - U. of Maryland & UC Irvine	Dark Matter
Ray Villard - STScI	Hubble Results

[I attended this conference in 1992 at Madison, Wisconsin with approximately 1200 other Astronomy enthusiasts. I can highly recommend this event to anyone interested in hearing the latest on the subjects listed above. If you are interested in going let me know and I'll share the specifics - C. Sarnecki]

ATM Subgroup Report

by Doug Scobel

Well, the Amateur Telescope Makers (ATM) subgroup has finally, "officially", gotten off the ground. On May 18, Kurt Hillig, Doug Nelle, Art Hocking, Mark Vincent, Mark Cray, and Bernard Friberg (sorry if I left anyone out) met at my house and we designed and actually started construction of the Dobsonian mount for the Cave eight inch f/7 telescope. Well, at least we succeeded in making a lot of sawdust. We cut up some nice 3/4 inch plywood (thanks, Kurt!) which will become the cradle for the tube assembly. Chris, you'll be happy to know that the Cave's tube assembly, including the rotation rings, will bolt in and out of the Dob cradle using the existing mounting bolts and tightening knobs, so it will be easy to switch between the new Dob mount and the existing equatorial mount. [*Much Thanks - Jr. Ed CS*] By the time the next ATM subgroup meeting rolls around, the cradle should be completed (except for paint). After it is finished, we can design and start building the rocker box assembly. By the way, if anyone has some textured laminate to use on the bottom of the rocker box, please contact one of us. We need a piece at least a foot square. We think we have everything else we need.

The next ATM subgroup meeting is **tenatively scheduled for June 22 at 2:00 pm (that's the Sunday after the regular club meeting on Friday, June 20) AT PEACH MOUNTAIN OBSERVATORY. Actually, this is going to be an "observatory cleanup session"**, so come on out with your cleaning supplies, dumpster, old clothes, pickup truck, shop vac, or anything else that might be useful in getting the inside of the observatory clean and organized.

HUBBLE'S UPGRADES SHOW BIRTH AND DEATH OF STARS; DISCOVER MASSIVE BLACK HOLE

Press Release No.: STScI-PR97-11, May 12, 1997

Three months after an orbital house call by astronauts, new instruments aboard NASA's Hubble Space Telescope are helping astronomers probe the universe in greater detail than ever before.

New data released by NASA today include direct evidence of a supermassive black hole and remarkable new details on the explosive life cycle of stars. NASA also reported that all new Hubble instruments and upgrades are generally performing well.

"We're extremely excited about the quality and precision of the images from Hubble," said Wes Huntress, NASA Associate Administrator for Space Science. "Following check-out of the instruments, Hubble will return to full science operations, and we can expect a continuing flow of new and exciting discoveries."

These initial results clearly demonstrate the ability of the new instruments to fulfill their science goals with the Hubble Telescope, say project astronomers. Project officials are pleased to report that other instruments and electronics installed during the second servicing mission are performing well.

Among Hubble's recent observations:

Jets and Gaseous Disk Around the Egg Nebula -- A new infrared instrument peered deep into the dust-obscured central region around a dying star embedded in the Egg nebula. A nebula is a cloud of dust and gas 3,000 light years from Earth. The new images provide a clear view of a twin pair of narrow bullet-shaped "jets" of gas and dust blasted into space. The instrument, called the Near Infrared Camera and Multi-Object Spectrometer, also revealed an unusual scalloped edge along a doughnut-shaped molecular hydrogen cloud in the nebula.

"Because we can now see these 'missing pieces' in infrared and visible light, we have a more complete view of the dynamic and complicated structure of the star," said Rodger Thompson of the University of Arizona, Tucson, the principal investigator for the infrared instrument. "It also allows us to see a 'fossil record' of the star's late evolutionary stages."

Unveiling Violent Starbirth in the Orion Nebula - The new infrared instrument penetrated the shroud of dust along the back wall of the Orion nebula, located in the "sword" of the constellation Orion. Data revealed what can happen to a stellar neighborhood when massive young stars begin to violently eject material into the surrounding molecular cloud. Although ground-based infrared cameras have previously observed this hidden region known as OMC-1, the Hubble's new instrument provides the most detailed look yet at the heart of this giant molecular cloud. Hubble reveals a surprising array of complex structures, including clumps, bubbles, and knots of material. Most remarkable are "bullets" composed of molecular hydrogen -- the

fastest of which travels at more than one million mph (500 km/s). These bullets are colliding with slower-moving material, creating bow shocks, like a speedboat racing across water.

Monster Black Hole in Galaxy M84 - In a single exposure, a new powerful instrument called the Space Telescope Imaging Spectrograph discovered a black hole at least 300 million times the mass of the Sun. The spectrograph made a precise observation along a narrow slit across the center of galaxy M84, located 50 million light-years away. This allowed the instrument to measure the increasing velocity of a disk of gas orbiting the black hole. To scientists, this represents the signature of a black hole, among the most direct evidence obtained to date. Due to their nature, it's impossible to directly photograph black holes. Scientists must instead look for clues to show the effects of black holes on surrounding dust, gas and stars.

"Hubble proved the existence of supermassive black holes three years ago," said Bruce Woodgate of the Goddard Space Flight Center, Greenbelt, MD, and principal investigator for the new spectrograph. "With this new instrument, we can do it 40 times faster than we used to."

Composition and Structure of the Ring Around Supernova 1987A - The new spectrograph also provides an unprecedented look at a unique and complex structure in the universe -- a light-year-wide ring of glowing gas around Supernova 1987A, the closest supernova explosion in 400 years. The spectrograph dissects the ring's light to tell scientists which elements are in the ring and helps paint a picture of the physics and stellar processes which created the ring. This gives astronomers better insight into how stars evolve and become a supernova, and into the origin of the chemical elements created in these massive explosions.

Hubble Status -- NASA project officials are encouraged that a problem detected earlier with one of the cameras on the infrared instrument has shown some improvement. The problem stems from the unexpected movement of the dewar -- an insulated vessel containing solid nitrogen at extremely cold temperatures. After launch, the nitrogen expanded more than expected as it warmed, moving the dewar into contact with another surface in the mechanism and pushing one of the cameras out of its range of focus. The camera has moved back about one-third of the distance required to be within reach of the instrument's internal focusing mechanism. This is because the dewar is "relaxing" toward its normal state, as pressure caused by the expansion of the

nitrogen is reduced. The ice keeps the sensitive infrared detector cooled. Project officials also are considering how to deal with unexpected, excessive coolant loss.

"We are anticipating a shorter lifetime for the instrument, but we don't know how much shorter," said Goddard Hubble Project Scientist David Leckrone. "We are taking steps to work around the problem, and will increase the percentage of time this instrument will be used."

NASA officials also report that other upgrades to Hubble are performing well, including the newly installed solid state recorder, fine guidance sensor and solar array drive electronics. The solid state recorder has significantly improved data storage and playback, and the new fine guidance sensor is by far the best of the three on Hubble.

Hubble Finds Cloudy, Cold Weather Conditions For Mars Bound Spacecraft

Press Release No.: STSci-PR97-15, May 20, 1997

As two NASA spacecraft speed toward a mid-year rendezvous with Mars, astronomers using the Hubble Space Telescope are providing updated planetary weather reports to help plan the missions.

Hubble's new images show that the "Martian invasion" of spacecraft will experience considerably different weather conditions than seen by the last U.S. spacecraft to land on Mars 21 years ago.

Martian atmospheric conditions will affect the operation of both the Mars Pathfinder landing on July 4, and the September 11 arrival of the Mars Global Surveyor which will map the planet from orbit. Hubble images taken barely three weeks apart, on March 10 and March 30, reveal dramatic changes in some local conditions, and show overall cloudier and colder conditions than Viking encountered two decades ago.

"Because Pathfinder uses the atmosphere to decrease its velocity for landing, and because the lander and rover are solar-powered, understanding the state of the atmosphere prior to landing is important," said Dr. Matthew Golombek, Pathfinder project scientist at NASA's Jet Propulsion Laboratory, Pasadena, CA.

"On July 4, Mars Pathfinder will enter the atmosphere directly from approach and slow itself behind an

aeroshell with a parachute, small solid rockets and giant airbags. The lander carries a small rover to explore the surface and investigate the kinds of materials present. Hubble images of Mars are helping us to adjust our flight path for landing and effectively plan surface operations," said Golombek.

"It's not the dusty Mars of the Project Viking days (mid 1970s to early 1980s) or the habitable oasis of science fiction stories," says Todd Clancy of the Space Science Institute in Boulder, CO. "We're finding a Mars that's colder, clearer, cloudier. Hubble is rapidly changing our view of Mars' environment. The planet's weather apparently has a flip-side to it."

Famous Quotes

Submitted via the Internet

"Computers in the future may weigh no more than 1.5 tons." -- *Popular Mechanics, forecasting the relentless march of science, 1949*

"I think there is a world market for maybe five computers." -- *Thomas Watson, chairman of IBM, 1943*

"I have traveled the length and breadth of this country and talked with the best people, and I can assure you that data processing is a fad that won't last out the year." -- *The editor in charge of business books for Prentice Hall, 1957*

"But what ... is it good for?" -- *Engineer at the Advanced Computing Systems Division of IBM, 1968, commenting on the microchip.*

"There is no reason anyone would want a computer in their home." -- *Ken Olson, president, chairman and founder of Digital Equipment Corp., 1977*

"640K ought to be enough for anybody." -- *Bill Gates, 1981*

"This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us." -- *Western Union internal memo, 1876.*

"The wireless music box has no imaginable commercial value. Who would pay for a message sent to nobody in particular?" -- *David Sarnoff's associates in response to his urgings for investment in the radio in the 1920s.*

"The concept is interesting and well-formed, but in

order to earn better than a 'C,' the idea must be feasible." -- *A Yale University management professor in response to Fred Smith's paper proposing reliable overnight delivery service. (Smith went on to found Federal Express Corp.)*

"Who the hell wants to hear actors talk?" -- *H.M. Warner, Warner Brothers, 1927, commenting on the idea of sound in movies.*

"I'm just glad it'll be Clark Gable who's falling on his face and not Gary Cooper." -- *Gary Cooper on his decision not to take the leading role in "Gone With The Wind."*

"A cookie store is a bad idea. Besides, the market research reports say America likes crispy cookies, not soft and chewy cookies like you make." -- *Response to Debbi Fields' idea of starting Mrs. Fields' Cookies.*

"We don't like their sound, and guitar music is on the way out." -- *Decca Recording Co. rejecting the Beatles, 1962.*

"Heavier-than-air flying machines are impossible." -- *Lord Kelvin, president, Royal Society, 1895.*

"If I had thought about it, I wouldn't have done the experiment. The literature was full of examples that said you can't do this." -- *Spencer Silver on the work that led to the unique adhesives for 3-M "Post-It" Notepads.*

"So we went to Atari and said, 'Hey, we've got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we'll give it to you. We just want to do it. Pay our salary, we'll come work for you.' And they said, 'No.' So then we went to Hewlett-Packard, and they said, 'Hey, we don't need you. You haven't got through college yet.'" -- *Apple Computer Inc. founder Steve Jobs on attempts to get Atari and HP interested in his and Steve Wozniak's personal computer.*

"Professor Goddard does not know the relation between action and reaction and the need to have something better than a vacuum against which to react. He seems to lack the basic knowledge ladled out daily in high schools." -- *1921 New York Times editorial about Robert Goddard's revolutionary rocket work.*

"You want to have consistent and uniform muscle development across all of your muscles? It can't be done. It's just a fact of life. You just have to accept inconsistent muscle development as an unalterable condition of weight training." -- *Response to Arthur*

Jones, who solved the "unsolvable" problem by inventing Nautilus equipment.

"Drill for oil? You mean drill into the ground to try and find oil? You're crazy." -- *Drillers who Edwin L. Drake tried to enlist to his project to drill for oil in 1859.*

"Stocks have reached what looks like a permanently high plateau." -- *Irving Fisher, Professor of Economics, Yale University, 1929.*

"Airplanes are interesting toys but of no military value." -- *Marechal Ferdinand Foch, Professor of Strategy, Ecole Superieure de Guerre.*

Everything that can be invented has been invented." -- *Charles H. Duell, Commissioner, U.S. Office of Patents, 1899.*

"Louis Pasteur's theory of germs is ridiculous fiction". -- *Pierre Pacht, Professor of Physiology at Toulouse, 1872*

"The abdomen, the chest, and the brain will forever be shut from the intrusion of the wise and humane surgeon". -- *Sir John Eric Ericksen, British surgeon, appointe Surgeon-Extraordinary to Queen Victoria 1873.*

DISCOVERY OF A CIRCUMSTELLAR DISK IN THE LAGOON NEBULA

ESO Press Release 06/97 - 9 April 1997

Circumstellar disks of gas and dust play a crucial role in the formation of stars and planets. Until now, high-resolution images of such disks around young stars within the Orion Nebula obtained with the Hubble Space Telescope (HST) constituted the most direct proof of their existence.

Now, another circumstellar disk has been detected around a star in the Lagoon Nebula -- also known as Messier 8 (M8), a giant complex of interstellar gas and dust with many young stars in the southern constellation of Sagittarius and four times more distant than the Orion Nebula. The observations were carried out by an international team of scientists led by Bringfried Stecklum (Thueringer Landessternwarte, Tautenburg, Germany) who used telescopes located at the ESO La Silla observatory and also observations from the HST archive.

These new results are paving the road towards exciting research programs on star formation which will become possible with the ESO Very Large Telescope.

The harsh environment of circumstellar disks - The existence of circumstellar disks has been inferred from indirect measurements of young stellar objects, such as the spectral energy distribution, the analysis of the profiles of individual spectral lines and measurements of the polarization of the emitted light.

Impressive images of such disks in the Orion Nebula, known as proplyds (PROto-PLANetarY DiskS), have been obtained by the HST during the recent years. They have confirmed the interpretation of previous ground-based emission-line observations and mapping by radio telescopes. Moreover, they demonstrated that those disks which are located close to hot and massive stars are subject to heating caused by the intense radiation from these stars. Subsequently, the disks evaporate releasing neutral gas which streams off.

During this process, shock fronts (regions with increased density) with tails of ionised gas result at a certain distance between the disk and the hot star. These objects appear on photos as tear-drop shaped, bright-rimmed areas with the cusps of the ionised regions aligned towards the exciting star. Such a region is also a very compact source of radio emission. Clearly, the harsh environment in which these disks reside does not favor planet formation.

These findings were facilitated by the fact that, at a distance of 'only' 1500 lightyears (about 450 parsec), the Orion Nebula is the closest site of high-mass star formation. Furthermore, many circumstellar disks around stars in this nebula are seen in silhouette against a bright and uniform background and are therefore comparatively easy to detect.

The Lagoon Nebula - In principle, similar phenomena should occur in any giant molecular cloud that gives rise to the birth of massive stars. However, the detection of such disks in other clouds would be very difficult, first of all because of their much larger distance.

The Lagoon Nebula (M8) is located four times further away than the Orion Nebula and it is also a site of recent high-mass star formation. Its brightest part constitutes a conspicuous region of ionised hydrogen gas (an 'HII-region') dubbed 'The Hourglass' because of the resemblance. The gas in this area is ionised by the action of the nearby, hot star Herschel 36 (Her 36).

High-resolution radio maps show that the emission from the ionised gas peaks at 2.7 arcsec southeast of

Her 36. An early explanation was that this emission is due to an unseen, massive star that is deeply embedded in the gas and dust and which is causing an ultra-compact HII-region (UCHR), cataloged as G5.97-1.17 according to its galactic coordinates.

High-resolution images from ESO - During a detailed investigation of such ultra-compact HII regions, Bringfried Stecklum and his colleagues found that, unlike ordinary UCHRs, this particular object is visible on optical images obtained with the HST Wide-Field Planetary Camera (HST-WFPC). This means that, contrary to the others, it is not deeply embedded in the nebula -- its light reaches us directly without suffering a high degree of absorption.

They subsequently obtained a series of high-resolution, near-infrared images using the adaptive optics camera ADONIS at the ESO 3.6-m telescope and the speckle camera SHARP at the 3.5-m New Technology Telescope, both at the La Silla observatory. These observing techniques revealed a star which is slightly offset from the extended optical image of G5.97-1.17 seen on the HST-WFPC frames.

This star is found to radiate strongly in the near-infrared spectral region, quite similar to the reddest central stars of the Orion proplyds. This is a clear sign of the presence of circumstellar dust. In addition, the star is intrinsically not as bright as Her 36; it is therefore less massive and exercises less influence on its immediate surroundings. Thus, it cannot be responsible for the observed ionisation of G5.97-1.17.

New HST images - The recent release by the Space Telescope--European Coordinating Facility (ST-ECF) of new HST images taken during a second series of observations of M8 with the new HST-WFPC2 camera allows an unambiguous identification of the physical nature of G5.97-1.17. On these images, G5.97-1.17 is spatially resolved and presents the typical bow shape with the apex of the bow pointing towards Her 36.

The infrared star, seen on the ESO images and barely visible on the HST-WFPC2 images taken at far-red optical wavelengths, is indeed situated behind the bright bow which is most conspicuous in the light of the red H-alpha spectral line, emitted by hydrogen atoms. The appearance of this object is thus similar to that of the proplyd sources found in the Orion Nebula.

A proplyd in the Lagoon Nebula - The detailed description of these results is the subject of a forthcoming research paper. The new understanding of G5.97-1.17, i.e. as harbouring an evaporating circumstellar disk heated by far-ultraviolet radiation

from Her 36, is supported by the fact that a sufficient amount of high-energy ultraviolet light is received from that star to account for the radio emission observed from the ionised bow.

This object therefore represents the first proplyd-type object detected outside Orion at a much larger distance.

The full description of this phenomenon requires detailed knowledge on the physical conditions of the star Her 36 and the object itself. Unfortunately, so far little is known about the properties of the stellar wind from Her 36, the mass-loss rate from G5.97-1.17 and the velocities of the interacting matter. The astronomer team therefore intends to carry out further adaptive-optics imaging and spectroscopy with the ESO instruments later this year.

Great prospects for related research projects - The detection of this new object shows that direct proofs for the existence of circumstellar disks in distant star-forming regions are possible with currently available telescopes. It also represents an important step forward for the preparation of scientific programs devoted to the formation of stars and planets that will soon be carried out with the ESO Very Large Telescope (VLT).

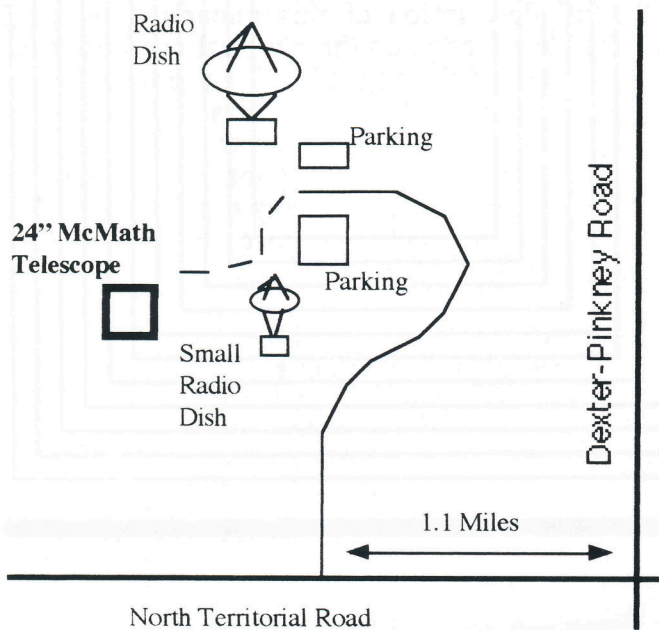
The new results demonstrate that the high-resolution images that will be obtained with the future giant telescopes and, especially, with the VLT Interferometer (VLTI) will most likely lead to important breakthroughs in our understanding on the complicated processes of star formation. This will in turn cast new light on how the Sun and the Earth came into existence, more than 4.5 billion years ago.

Where to find additional information - More details on the investigation of star formation in M8 and the newly discovered proplyd can be found on the World-Wide Web page of the Thueringer Landessternwarte (URL: <http://www.tls-tautenburg.de/M8.html>)

Telescope For Trade or Sale - Meade 4500. 4-1/2 inch reflector on an equatorial mount and aluminum tripod. Standard finder and 25mm eyepiece. Trade for a Meade 390, Orion SkyView 90, or similar 90mm refractor on an equatorial mount with tripod, or quality 80 or 90 mm binoculars. Will sell for \$250.00 if you don't have a trade. Contact Tom Stoner at 313-663-3232 or tgstoner@umich.edu

Places and Times:

Dennison Hall, also known as The University of Michigan's Physics and Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. It is found in Ann Arbor on Church Street about one block north of South University Avenue. The meeting is held in room 807.



Peach Mountain Observatory is the home of The University of Michigan's 25 meter radio telescope as well as the University's McMath 24 inch telescope which is maintained by the Lowbrows. The observatory is located northwest of Dexter. The entrance is on North Territorial Road, 1.1 miles west of Dexter-Pickney Road. A small maize-and-blue sign marks the gate. Follow the gravel road one mile to a parking area near the radio telescopes. Walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.

Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM in 807 Dennison Hall. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow the meeting.

Public Open House/Star Parties are held on the Saturday before and after each new Moon at the Peach Mountain Observatory. Star Parties are canceled if the sky is cloudy at sunset or the temperature is below 10 degrees F. Call 480-4514 for a recorded message on the afternoon of a scheduled Star Party to check on the status. Many members bring their telescopes and visitors are welcome to do likewise. Peach Mountain is home to millions of hungry mosquitos - bring insect repellent, and it does get cold at night so dress warmly!

Amateur Telescope Making Group meets monthly, with the location rotating among member's houses. See the calendar on the front cover page for the time and location of next meeting.

Dues:

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, and \$12 per year for students. This entitles you to the monthly REFLECTIONS newsletter and the use of the 24" McMath telescope (after some training). Dues can be paid to the club treasurer Doug Scobel at the monthly meeting or by mail at this address:

1426 Wedgewood Drive
Saline, MI 48176

Magazines:

Members of the University Lowbrow Astronomers can get a discount on these magazine subscriptions:

Sky and Telescope: \$27 / year

Astronomy: \$20 / year

Odyssey: \$16.95 / year

For more information contact the club Treasurer. Members renewing subscriptions are reminded to send your renewal notice along with your check when applying through the club Treasurer.

Newsletter Contributions:

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call Newsletter Editor Kurt Hillig at (313)663-8699(h) or (313)647-2867(o) or e-mail to khillig@umich.edu to discuss length and format. Announcements and articles are due by the first Friday of each month. Articles should be mailed to Kurt at:

7654 W. Ellsworth Road
Ann Arbor, MI 48103

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Lowbrow's WWW Home Page:

<http://www.astro.lsa.umich.edu/lowbrows.html>

Monthly Meeting : June 20, 1997 at 7:30 pm

Room 807 Dennison Hall (Physics & Astronomy Building) at The University of Michigan

Mark Deprest and Mark Vincent: Introduction to Aided Visual Astronomy

First time amateur astronomers face a bewildering choice of binoculars, telescopes and eyepieces. With such a large selection, how can one decide what may be the best choice for them? The Lowbrows want to help. Our speakers will discuss a wide range of topics. What equipment is good for the beginner. What you can expect to see. How much could it all cost. A selection of binoculars, telescopes and eyepieces will be presented. Anyone interested in astronomy is welcome. (HST image of M100 spiral galaxy)



University Lowbrow Astronomers
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Ann Arbor, Michigan 48105



Check your membership expiration date on the mailing label !

