Hamilton Amateur Astronomers

Event Horizon

October 1997 Volume 4 Issue 11

Using Eyepiece & Photographic Nebular Filters (Part 2)

This article is a continuation from last month and may obtained from the web at ***http://www.netcom.com/~regina-r/astro.html***

VISUAL TESTS OF FILTERS:

The primary authors of this website -- Waldee and Wood -- have many years' experience with both visual and photographic use of the appropriate types of these filters, and have even devised and conducted an extensive series of double- blind tests of visual filters, with a group of four observers with varying degrees of viewing experience (age 14 to the late 40s), to evaluate their performance in moderately light- polluted skies. Our methodology was to use a selection of filters with several identical brand and focal length oculars, which were handed in the dark to an intermediary who did not know which one was being tested; these were inserted quickly into the focuser of our test telescopes so that only 3 or 4 seconds elapsed between filters being tried by a third party, the observer. This is not as precise as the method employed in a Feb. 1991 ASTRONOMY Magazine article in which a virtually instant change was made using a specialized mechanical switching contraption (similar to the new Multiple Filter Selector recently introduced by Lumicon), but it it closest to the normal process used in typical observing sessions. In addition, we had the opportunity to consult actual laboratory measurements of the transmission characteristics of each filter, and to consult a simple visual spectroscope display, using a diffraction grating and matching optics, to study the light wavelength responses, to correlate the lab measurements to the telescope tests "under the stars." Our tests indicated in general that:

OPINIONS ABOUT VIEWING ENHANCEMENT WIDELY VARY.

Differences between brands were noted, but preferences were not always consistent. There is not necessarily a BEST filter for any specific object under all viewing conditions, or with all telescopes. Some observers liked the more natural effects of the filters with gentle cutoff slopes; others appreciated the high

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Asian Astronomy 101

Okay class, settle down. You in the back - the one with the earring - pack that up and do it on your own time.

All right. As an introduction to the course, let's take a look at how the earliest Asian astronomers viewed our solar system. This means we'll be thinking primarily about the Chinese because they've left us the oldest and most numerous records.

Like other astronomers from ancient civilizations, the Chinese were extraordinary naked-eye observers. They kept careful track of what the Greeks called planets - literally "wandering stars". The fact that there were five visible planets fit in very well with a concept that has been popular in China for thousands of years : that of the five elements.

Just as Westerners have traditionally divided matter into four subgroups, the Chinese recognize five basic substances : fire, water, metal, wood, and earth. But the analogy with western thought isn't complete because the Asian concept includes interrelationships between the elements. There are producing, or promoting relationships (for example, water promotes the growth of wood) and controlling relationships (water extinguishes fire). Thus, the five elements are also seen as five phases of a continuous cycle that includes all matter.

Since we have five phases and five moving planets, it's only natural to

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inside...

Editorial

For the November issue of Event Horizon please send your articles and pictures to our new editor, Tracy Webb, at **webb@physics.mcmaster.ca**. After editing our newsletter for two years it is time for me to take a break. I would like to thank everyone who has contributed to the newsletter making my job a lot easier. Next month's issue will list all the new councillors and their duties. You will find my name still on the list in another position.

Doug Welch passed along information about a very interesting web site. If you have a Web browser, check out the following URL for the CIA's official historian's account of the history of "agency" involvement with UFOs. **http://www.odci.gov/csi/studies/97unclas/ufo.html**

Before you say anything, I know I said that I would have another "Ask the Expert" column. My only excuse is that with limited space I had to choose between the column and the late breaking news about the "Pistol Star". I think you will agree that I made the right choice. The image on page one of this issue is of the star and its surrounding nebula. The star is the object in the middle of the second paragraph about "Asian Astronomy 101".

In last month's issue I neglected to mention that the front cover photograph was the massive star Eta Carina.

Stewart Attlesey
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Rob'serving Report

Tony Wallace has graciously agreed to take over as Observing Director for next year. If there are other candidates forthcoming, they will have to fight it out in a November election. If Tony tells you that I threatened him and his family, don't believe him. I wouldn't dream of harming his family.

How many of you saw the occultation of Saturn by the Moon at 07:05 on Sept.18? If you didn't get up to see it, you didn't miss much. The sun had risen too high and it was too bright to be a spectacular sight. Between a bright sky and a bright Moon, Saturn was not very visible. An observing spot much further west would have been better, delaying the onset of the rising sun. I'm sure glad I hadn't bothered with any photography equipment, as I had originally planned.

Friday, Sept. 26, was a very successful Binbrook Conservation Area observing night, with an attendance of about 15 people or so (12 cars!) I thought something was amiss with Jupiter when I saw only two satellites in the early evening. A quick check of the RASC Handbook showed that both Io and Europa were occulted until about 10:30 pm.

This is my last report. It has been a real learning experience- armed with 4-6 magazines, Skygazer's Almanac, RASC Handbook and Calendar, trying to figure out what's happening each month. I hope that some of you have found the information useful.

I purposely delayed some of the best events until now. Jupiter is putting on a great show in November. You should get out and enjoy the sights Jupiter is providing. It won't be with us

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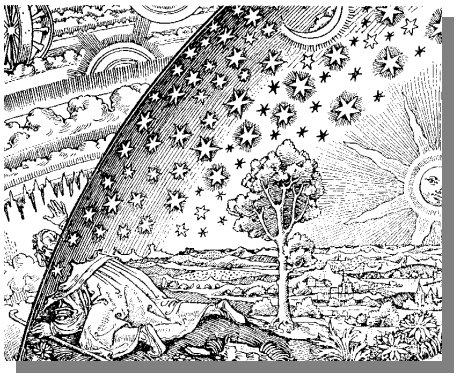
HAMILTON AMATEUR ASTRONOMERS

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).

The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels

The cost of the subscription is included in the $15 individual or $20 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.



Rob'serving Report ...

(Continued from page 2)
much longer as it slowly drops further into the western evening twilight. There will be a double AND a triple shadow crossing as well as the occultation of a moderately bright star.

Jupiter's Satellite Shadow Crossings

The first time is the start of the shadow crossing (ingress) and the second is the end (egress). Only one of the shadow's ingress and egress times may be listed because of the time of evening twilight and Jupiter's setting time. Times are Eastern Daylight Savings up to Oct. 26. Thereafter, times are back to Eastern Standard Time.

Oct. 12 Europa 22:26--->01:15 Oct. 13
Oct. 20 Europa 01:01--->*
Oct. 20 Io *---> 20:04
Oct. 27 Io 18:43EST--->20:59
Oct. 30 Europa *--->18:45
Nov. 3 Ganymede 17:58--->21:35
Io 20:38--->22:55
Double crossing from 20:38--->21:35
Nov. 6 Europa 18:32--->21:21
Nov. 10 Callisto 21:10--->*
Ganymede 21:59--->*
Io 22:34--->*
Triple crossing from 22:34 to dawn
Try to compare darkness and size of the three shadows!
Nov. 12 Io *--->19:20
Nov. 13 Europa 21:08--->*
Nov. 19 Io 18:59--->21:16
Nov. 28 Io *--->17:40

For other events, such as eclipses, occultations and transits of satellites search the table in the "RASC Handbook" or "Sky and Telescope". At the beginning of November check between 22:30 and 04:30 UT. At the end of November between 22:30 and 03:00 UT. Jupiter is setting about 20min. earlier every week. To get your local EST subtract 5 hours from the UT shown for each event after Oct. 26.

Monthly In-Sights

October

- 15- Hunter's Full Moon.
- 19- Moon occults Aldebaran in early morning.
- 21- Orionid Meteor Shower peaks ~7pm.
- 26- Venus and Mars only 2 deg. apart.
- 26@2am- Fall back to Eastern Standard Time (UT-5hr=EST)

November

- 2- Taurid meteors peak ~6pm.
- 3@19:38- Double shadow crossing Jupiter.
- 6@2am- Venus at greatest eastern elongation in western sky (47 deg.)
- 9- Mars passes near Lagoon Nebula, M8.
- 10@21:34- Triple shadow crossing Jupiter.
- 11@7pm- Near full Moon 0.4 deg. N of Saturn (occulted in SE USA)
- 12@21:30- Jupiter occults 6th magnitude star SAO164156
- 15- Aldebaran 0.5 deg. S of full Moon.
- 17- Leonid meteor shower peaks. We're close to the 33-year peak in 1999.
- 28- Mercury at greatest eastern elongation in western sky (22 deg.)

- Seven planets are visible in the evening this month (eight, if you look down.) Pluto is too near the sun's line of sight to be visible.
- Mercury is visible low in the SW in the evening by mid-November.
- Venus is brilliant in Nov/Dec, going from half-Venus at mid-Nov. to a crescent by mid-Dec. It is very colourful because its light is passing through a great deal of the earth's atmosphere so close to the horizon.
- Mars is is close to and slightly west of Venus for Nov.- low in the SW.
- Jupiter is near the meridian at dusk, setting at about 10:30pm. See calendars above for several interesting events.
- Saturn is visible in Pisces almost all night, setting at 3:30am. Rings span 45" and are tilted 10 deg. to us.
- Neptune & Uranus are a few degrees west of Jupiter.
- Pluto not visible in November.

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Robert Burnham Jr.

Most amateur astronomers are familiar with the three volume set of books called *Burnham's Celestial Handbook*. Very few of those same people know much about the author though. It came as as surprise to many that Robert Burnham died a few years ago in obscurity. Even his own family was unaware that he had died.

Burnham gained a small measure of fame with the co-discovery of a comet on October 18, 1957. The next year he was given sole credit for the discovery of Comet Burnham 1958a. It was his comet discoveries that lead to him being hired at Lowell observatory to work on a "proper motion" study of stars.

The *Celestial Handbook* began as a series of notes about the many objects in the night sky and were originally for his own use. By the end of 1957 his notes had grown to over 1,200 pages and was finally finished by 1965 while working at Lowell

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The "Pistol Star"

Hubble Identifies What May Be the Most Luminous Star Known.

Press Release No.: STScI-PR97-33

Astronomers using NASA's Hubble Space Telescope have identified what may be the most luminous star known -- a celestial mammoth which releases up to 10 million times the power of the Sun and is big enough to fill the diameter of Earth's orbit. The star unleashes as much energy in six seconds as our Sun does in one year.

The image, taken by a University of California, Los Angeles (UCLA)-led team with the recently installed Near-Infrared Camera and Multi-Object Spectrometer (NICMOS) aboard Hubble, also reveals a bright nebula, created by extremely massive stellar eruptions. The nebula is so big (four light-years) that it would nearly span the distance from the Sun to Alpha Centauri, the nearest star to Earth's solar system.

The astronomers estimate that when the titanic star was formed one to three million years ago, it may have weighed up to 200 times the mass of the Sun before shedding much of its mass in violent eruptions.

"This star may have been more massive than any other star, and now it is without question still among the most massive -- even at the low end of our estimates," says Don F. Figer of UCLA. "Its formation and life stages will provide important tests for new theories about star birth and evolution."

Violent Eruptions Produce Nebula

The UCLA astronomers estimate that the star, called the "Pistol Star" (for the pistol shaped nebula surrounding it), is approximately 25,000 light-years from Earth near the center of our Milky Way galaxy. The Pistol Star is not visible to the eye, but is located in the direction of the constellation Sagittarius, hidden behind the great dust clouds along the Milky Way.

The Pistol Star was first noted in the early 1990s, but its relationship to the nebula was not realized until 1995, when Figer proposed in his Ph.D. thesis that the "past eruptive stages of the star" might have created the nebula. The Hubble spectrometer results confirm this conclusion.

The astronomers believe that the Pistol nebula was created by eruptions in the outer layers of the star which ejected up to 10 solar masses of material in giant outbursts about 4,000 and 6,000 years ago. The star will continue to lose more material, eventually revealing its bare hot core, sizzling at 100,000 degrees.

Burning at such a dramatic rate, the Pistol Star is destined for certain death in a brilliant supernova in 1-3 million years. "Massive stars are burning their candles at both ends; they are so luminous that they consume their fuel at an outrageous rate, burning out quickly and often creating dramatic events, such as exploding as supernovae," said Mark Morris, a UCLA professor of astronomy and co-investigator. "As these stars evolve, they can eject substantial portions of their atmospheres -- in the case of the Pistol Star, producing the nebula and an extreme stellar wind (outflow of charged particles) that is 10 billion times stronger than our Sun's."

The Pistol Star would be

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Asian Astronomy 101 ...

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associate the two. But which names for which planets? Obviously, Mars is the fire star, and brilliant Venus must be connected with metal. That leaves water, wood, and earth. Ironically, the ancients chose to make Mercury the water star. Wood and earth went to Jupiter and Saturn, respectively.

Because knowledge of the outer planets came in comparatively recent times, the Chinese names for them are simply translations of the Roman ones. Thus Uranus is known as "sky king star" and Neptune as "sea king star". Even though the concept of Hades is not common to Asian cultures, Pluto's translation ("dark king star") is still quite apt.

One thing that can be said about Chinese astronomers -- they called them as they saw them. Subsequent generations of stargazers are now left with evocative names such as "silver river" for the Milky Way, and "broom star" for comet.

Even our own planet -- Damn!

Excuse me, you in the front, can you go down the hall and see if there's any more chalk?

"Professor" Denise Kaisler
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Using Nebular Filters ...

(Continued from page 1)
contrast of the filters with the sharpest curves. *Filter transmission percentage was not always detectable.* Small differences in the transmission percentage of a given brand of filter were not necessarily detectable under the conditions employed in which a 3 - 4 second lapse occurred between switching ocular / filter, using identical brand and type filters. In other words, viewers could not always reliably tell which filter had a 10% loss, or a 15% loss, at the precise wavelength of a nebula. However, we concluded that the alternate "instant switching" method would have surely shown such differences. Yet, the eye - brain quickly compensates for slight visual differences of perception, and "readjusts" to the view presented. As in every product, 'you get what you pay for': but the most careful and experienced viewer is likely to be able to spot the differences in filters. *Exit pupil size was quite critical to viewing success.* If the exit pupil was too big, the result was a poor enhancement of contrast and little improvement. Conversely, if the exit pupil was too small, the background was very dark, and the filter made little improvement, since the image was already too dim. While calculation "by the numbers" using our program or published filter recommendations is not always exactly predictable, it certainly provides a means of understanding the acceptable range of magnifications in a given telescope, over which a filter will work well.

CONCLUSION:

Eyepiece filters for nebular contrast enhancement will provide a boon for observers who view in regions where there is any visual light pollution; some models will help identify specific objects (such as small planetary nebulae or dark nebulae) and will reduce upper atmospheric skyglow. Colored eyepiece filters will be of occasional help for viewing enhanced planetary detail, but may not be as universally useful -- as some advertisers would insist -- if optics and seeing are superb . All in all, eyepiece filters are indispensable tools in the observer's quest to detect more information than is available in a casual glance. What brands should you buy? We advocate testing filters during star- party or observing sessions until you are sure a specific filter will meet your needs. Reputable dealers and manufacturers will have a reasonable return policy.

REFERENCES:

FILTERS:

Nebular filters for viewing and astrophotography: available in a large variety of sizes and models for eyepieces, guiders, and camera lenses from the The Lumicon Company On-Line Catalog, and for eyepieces and camera lenses from the Orion Telescope and Binocular Center Online Catalog.

PUBLICATIONS:

Visual Astronomy of the Deep-Sky by Dr. Roger N. Clark, 1990, Sky Publishing; chapters 2 & 3;

Night Sky Pollution: Measurement, Evaluation and Reduction by Filter by Dr. Jack Marling of Lumicon Company; Livermore, California; Proceeding of Riverside Telescope Makers Conference, RTMC80, pp. 56-81; excerpted by permission of the author in our DOS freeware program *Redscope 4.03 with Double Stars & Deep-Sky Objects*, a free edition we recently prepared for readers of our website;

Reviews of nebular filters may be found in the February, 1991 issue of *Astronomy* Magazine (Kalmbach Publishing Home Page), and the July, 1995 issue of *Sky & Telescope* (Sky Publishing Home Page.) We did not always replicate the findings of their reviewers, but the reports are quite thought- provoking, and are generally well- done;

The Planet Observer's Handbook by Fred Price, Cambridge University Press;

SOFTWARE:

Eyepiece 2.5 Light Edition (DOS freeware) Telescope parameter program for determining the exit pupil of eyepieces with respect to appropriate nebular filters, and prime-focus exposure times for Messier objects. The approximately 360-kB file is available free.

For More About Filters, Consult Our *Beginners' Astrophotography* Page. Or, try our own series of Waldee-Wood Astro-Links *Eyepiece 2.5* Light Edition, the author's DOS freeware program for calculating the appropriate exit pupil for filter use, is available ONLY over the Internet. Consult the "Download Info & Sites" page at the WALDEE-WOOD ASTRONOMICAL SOFTWARE website at:
http://www.netcom.com/~regina-r/astro.html
from which you may download the software from US or European servers.

Yours,
Steve Waldee

Comments/Questions? Contact Steve at:
apodizing@juno.com

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If you are interested in subscribing to any of these magazines or wish to renew an existing subscription at club rates, please contact -

Ann Tekatch at 575-5433 email:tekatcba@mcmail.cis.mcmaster.ca

Winter's Finest Sights

This is the third and last installment of a 3-part "Finest Sights" series which first appeared in Sky and Telescope from Nov/1965 to Jan/1966. The authors, James Mullaney and Wallace McCall, had spent five years carrying out a visual survey of every conceivable object down to -40 degrees declination.

Although the main instrument was a 13-inch refractor, the 100 or so star clusters, red stars, nebulae, galaxies and multiple stars in the list were examined in instruments ranging from 3-inch to 30-inch. They are listed in increasing R.A., from 0 to 8 hours using Epoch 1950 co-ordinates, which are only approximate for 1997/98. Simple programs to convert to Epoch 2000 are available. I have converted the entire series to an LX200 user-friendly table that has no RA and Dec co-ordinates. All 105 objects are ready for keypad entry. I would be pleased to send a copy on request.

Description of Objects

70. M31. The great Andromeda galaxy is finest representative of its class. Scopes up to 6-inch show a bright, hazy, featureless ellipse. Some dark structure can be seen in a 13-inch and larger.
71. NGC 253 looks somewhat like M31, but smaller.
72. Eta Cassiopeiae has yellow and reddish-purple components which are about 10-seconds apart.
73. Gamma Arietis is a pair of equally bright white stars, 9 seconds apart. They are easily seen in a 3-inch.
74. Alpha Piscium is a tight, white pair, 3 seconds apart.
75. Gamma Andromedae is one of the finest coloured doubles, orange and blue. At 10 seconds separation, it is visible in all apertures.
76 & 77. NGC 869 and 884 make up the double cluster in Perseus. Rated as the finest open clusters for small telescopes, they are superb in many. Contrasting star colours are discernible in larger scopes.
78. Iota Cassiopeiae is a fine triple, with blue-white companions 2.5 and 7 seconds from the yellowish primary. Scopes 6-inch and above are needed.
79. Gamma Ceti. Attractive close (3-second) pair.
80. Theta Eridani, although very close to the horizon at our latitude, is a brilliant pair of white stars 9 seconds apart.
81. 32 Eridani's components are yellow and blue-green, separated by about 7 seconds. Colour contrast is vivid in medium to larger scopes.
82. NGC 1535 is a small, pale blue-green disk with a faint central star. A 6-inch at 100x shows it but not the star; a 13-inch reveals both.
83. Rigel is a blue-white star with a white, much fainter companion 10 seconds away. It is just resolved in a 3-inch.
84. Eta Orionis, a bright white pair only 1.5 seconds apart, needs a 10-inch for separation.
85. Lambda Orionis is a 5.5-second pair of white stars.
86. Theta Orionis. This beautiful multiple system is embedded in the Orion nebula. Six components are visible in a 4-inch.
87. M42, the Orion nebula, is the finest diffuse nebula in this survey- a magnificent sight! Even a 3-inch reveals darker areas and long filaments in this bright green nebulosity.

88. Iota Orionis, a 12-second pair, is a fainter version of Rigel, with a hint of dim nebulosity. In the same field is the

	Object/ Constellation	Right Ascension	Declination	Magnitude	Type of Object
70	M31 And	00:40	41.0	5	Spiral galaxy
71	NGC 253 Scl	00:45	-25.6	9?	Spiral galaxy
72	Eta Cas	00:46	57.6	4, 8	Double star
73	Gamma Ari	01:51	19.1	5, 5	Double star
74	Alpha Psc	01:59	02.5	4, 5	Double star
75	Gamma And	02:01	42.1	2, 5, 6	Triple star
76	NGC 869 Per	02:16	56.9	4	Open cluster
77	NGC 884 Per	02:19	56.9	5	Open cluster
78	Iota Cas	02:25	67.2	5, 7, 8	Triple star
79	Gamma Cet	02:41	03.0	4, 6	Double star
80	Theta Eri	02:56	-40.5	3, 4	Double star
81	32 Eri	03:52	-03.1	5, 6	Double star
82	NGC 1535 Eri	04:12	-12.9	9	Planetary nebula
83	Beta Ori	05:12	-08.3	0, 7	Double star
84	Eta Ori	05:22	-02.4	4, 5	Double star
85	Lambda Ori	05:32	09.9	4, 6	Double star
86	Theta Ori	05:33	-05.4	-	Multiple star
87	M42 Ori	05:33	-05.4	?	Diffuse nebula

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Winter's Finest Sights...

	Object/ Constellation	Right Ascension	Declination	Magnitude	Type of Object
88	Iota Ori	05:33	-05.9	3, 7	Double star
89	Sigma Ori	05:36	-02.6	4, 6, 7, 10	Multiple star
90	Zeta Ori	05:38	-02.0	2, 4, 9	Triple star
91	M37 Aur	05:49	32.6	6	Open cluster
92	Theta Aur	05:56	37.2	3, 8	Double star
93	M35 Gem	06:06	24.3	5	Open cluster
94	Beta Mon	06:26	-07.0	5, 5, 6	Triple star
95	UU Aur	06:33	38.5	5-7	Red star
96	12 Lyn	06:42	59.5	5, 6, 8	Triple star
97	Alpha CMa	06:43	-16.6	-1, 9	Double star
98	Delta Gem	07:17	22.1	4, 8	Double star
99	NGC 2392 Gem	07:26	21.0	8	Planetary nebula
100	Alpha Gem	07:31	32.0	2, 3, 10	Triple star
101	Kappa Pup	07:37	-26.7	4, 5	Double star
102	M46 Pup	07:40	-14.7	9	Open cluster
103	Zeta Cnc	08:09	17.8	6, 6, 6	Triple star
104	Iota Cnc	08:44	28.9	4, 7	Double star
105	M67 Cnc	08:48	12.0	6	Open cluster

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double Struve 747.

89. Sigma Orionis is a multiple star, three components being easily seen in a 3-inch, four in a 6-inch. The bright star has a very difficult close (0.3 second) companion.

90. Zeta Orionis has a bright close (2.5 second) companion and a distant faint one, all three being blue-white.

91. M37 is the finest of the great open clusters in Auriga. It is rich and uniform, resolved in a 4-inch at 40x, and has an orange star near its center.

92. Theta Aurigae, a very unequal, close (3-second) pair; difficult in any scope much smaller than 10 inches.

93. M35, a large, uniform, and bright star cluster, needs at least a 30-minute field for a good view.

94. Beta Monocerotis is the finest triple star in the list. The components, all yellow-white, form a triangle of 10-seconds greatest extent. Easy in a 6-inch.

95. UU Aurigae is a bright, very red carbon star, more vivid in an 8-inch than in a 13-inch.

96. 12 Lyncis is a triple system, nice in a 6-inch.

97. Sirius, the brightest star other than the sun, dazzles the eye with its blue-white brilliance. Under excellent conditions, the white dwarf companion can just be seen in an 8-inch at 280x.

98. Delta Geminorum is a 7-second pair with yellow and reddish-purple components.

99. NGC 2392 is a vivid blue planetary nebula with a bright central star. It is easy with a 6-inch at 100x, and a 13-inch at 600x permits dark structures in the disk to be glimpsed with averted vision.

100. Castor. The two very bright, blue-white stars form a close binary whose separation is just under 2-seconds. The faint third star, a minute of arc away, is orange and just visible in a 3-inch at 150x.

101. Kappa Puppis, easy in a 3-inch, is a 10-second pair of white stars.

102. M46 is a uniform cluster of faint stars. On its northern edge is NGC 2438, a dim ring nebula visible in a 10-inch.

103. Zeta Cancri is an attractive but difficult triple. A 4-inch shows only two components about 6 seconds apart. The three, all yellow, are well resolved in a 10-inch at 320x.

104. Iota Cancri is an orange star with a blue neighbour 31 seconds away.

105. M67 is a rich swarm of rather faint stars, resolved in a 4-inch, is a fine sight in a 6-inch.

Submitted by Rob Roy
Observing Director
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Robert Burnham Jr...

(Continued from page 3)

Observatory.

The survey, that was to be his only job in life, ended in 1979. During his employment he and Norm Thomas discovered 9,000 high motion stars, several comets, 1,500 asteroids, 2,000 new white dwarf suspects and thousands of variable stars. After Lowell his only source of income was a meager amount of money from book sales.

Robert Burnham disappeared in 1985 and died a pauper in 1993.

See **www.phoenixnewtimes.com** for a fascinating story about Robert

November Night Skies

Cosmic Voyage

To: Hamilton Amateur Astronomers

Hello, my name is June Kurzinger. I'm with the Ontario Science Centre. We'd like to tell you about the upcoming launch of our new OMNIMAX (Imax Dome) film COSMIC VOYAGE at our new OMNIMAX Theatre on November 1. We think this film would be of particular interest to your Astronomy Club. It has had excellent response from the astronomy and computer animation communities and other science centres and museums.

The film is loosely based on the 1960s/70s National Film Board film, POWERS OF TEN. It takes the viewer from a drop of water on a leaf into the tiniest matter known to man -- the quark. It then takes a cosmic zoom out into the universe where it talks about superclusters of galaxies, the universe, and the "big bang" theory. The film uses a number of ground-breaking elements in the world of computer animation to blend live action footage with computer-generated images. In fact, the production team developed a new software called the "Virtual Director" to help them create these images.

The film opens to the public on Nov. 1 and will be part of a number of COSMIC VOYAGE related weekend activities including a performance by the Canadian Children's Dance Theatre, a laser company called Design International, a demonstration by the Royal Astronomical Society of Toronto and a comet-making display by our Ontario Science Centre hosts.

We will be sending you a special mailing in the next two weeks that will include information about the film and also an invitation to our VIP preview screening on Oct. 28, where the producer/writer/director - Bayley Silleck will be with us for the evening to answer questions.

We look forward to seeing your group at the Science Centre for this exciting new Omnimax film.

If you are interested in attending this event, please contact Grant Dixon at 627-3683

The "Pistol Star" ...

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visible to the naked eye as a fourth magnitude star in the sky (which is quite impressive given its distance of 25,000 light-years) if it were not for interstellar dust clouds of tiny particles between the Earth and the center of the Milky Way that absorb the star's light.

The Pistol Star was so massive when it was born that it brings into question current thinking about how stars are formed.

Visit **http://oposite.stsci.edu/pubinfo/PR/97/33.html** for more information.

CALENDAR OF EVENTS

♦ Friday, October 17, 7:30 PM	**COUNCIL MEETING** - At the home of Barb Wight. Call Doug at 525-9140 Extension 23186 if you are interested in attending.
♦ Monday, October 20, 7:00PM	**HAJA MEETING** - McMaster Burke Science Building, room B148. Topic TBA. For more information contact Rosa Assalone at 540-8793
♦ Tuesday, October 28	**COSMIC VOYAGE** - Preview screening at the Ontario Science Centre. See the article above for more information.
♦ October 31 and November 1, 8:00 PM	**BINBROOK OBSERVING SESSIONS** - Proposed observing nights. For confirmation or directions call Rob Roy (692-3245) or Ann Tekatch (575-5433)
♦ Thursday, November 6, 8:00 PM	**ROYAL ASTRONOMICAL SOCIETY OF CANADA Hamilton Centre** - General Meeting - Spectator Building auditorium.
♦ Friday, November 7, 11:59 PM	**EVENT HORIZON DEADLINE** - Please submit your articles and pictures to Tracy Webb, **webb@physics.mcmaster.ca**
♦ Friday, November 14, 7:30 PM	**HAA GENERAL MEETING** - at the Spectator Building auditorium. The speaker will be Paul Delaney of York University who will speak on recent results from Mars. Parking lot observing, weather permitting.
♦ Monday, November 17th, 7:00PM	**HAJA MEETING** - McMaster Burke Science Building, room B148. Topic TBA. For more information contact Rosa Assalone at 540-8793