

# Event Horizon

November 1998

Volume 6 Issue 1

## The Leonid Meteor Shower- 1998

**M**eteor showers feed on the debris left over from orbiting comets. Once a year, on or about Nov. 17, the Earth passes through the stream of fine sand-like particles left behind by Comet Temple-Tuttle. The meteor trails appear to radiate out from the background of stars forming the constellation of Leo, the Lion, hence the name of this particular meteor shower.

Every 33.25 years Comet Temple-Tuttle crosses the Earth's orbit, most recently on March 5, 1998. No one

knows for sure whether this latest salting of the comet debris field is going to produce a spectacular night-time show.

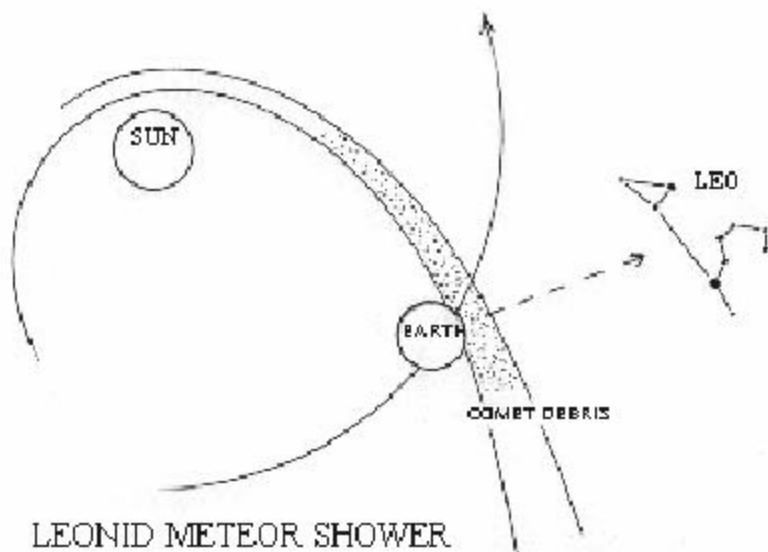
The predicted peak of the Leonid shower/storm is at mid-day for all of North America. The best show will occur in the dark skies of Japan and westward. Here in Canada, we can reasonably expect about 20-40 meteors per hour during the early morning hours of Nov. 17 and half of that number on Nov. 18. [See Rob'serving Report for viewing details.]

Previous spectacular Leonid meteor storms, where thousands fell per

minute, were in 1966, 1833 and 1799, although there is evidence that the Leonids were witnessed as far back as the year AD 902. The 1833 storm prompted the birth of meteor science and a better understanding of their origins.

The largest group of non-astronomers "watching" this year's Leonids will likely be those who have a vested interest in the 500+ satellites which orbit the Earth. Colliding at 71Km/sec, as they will, even the tiniest grains can cause serious damage. Wherever possible, equipment will be oriented to show its thinnest, least vulnerable profile to the meteor stream.

*Rob Roy*  
*Observing Director*  
 <royrg@mcmaster.ca>



**Meteor** - originally used for something high up and included any phenomena in the sky or heavens, e. g. even frost. It was used to mean "shooting stars" at the end of the 16th century. The early 19th century saw the term "meteorites" used for those meteors which hit the ground.

*Rob Roy*

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## Chair's Report

This month marks the fifth birthday of the HAA. In September 1993 a group of us got together to form a club that had low membership dues, maintained an informal atmosphere and focussed on observational astronomy and education. Our first general meeting was held on November 12, 1993 in the basement of the Burke Science building at McMaster University. It wasn't until later in 1994 that we started holding our meetings at the Hamilton Spectator Building. The mission statement for our club was to be "*The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.*" Judging by the number and diverse mix of our members we been very successful. Since one of our goals is to keep our membership dues low we can't afford the luxury of having our own observatory. For that reason we arranged with the Niagara Peninsula Conservation Authority to make use of the Binbrook Conservation area for our observing sessions. We make a small donation to the Authority each year in appreciation.

Our dues are still at the original \$15 a year for individuals and \$20 a year for a family membership. This just barely covers our newsletter costs. One reason that we have been able to keep dues so low is the money brought in by Grant Dixon doing planetarium shows. He is now taking a well-deserved break and so we need some other volunteers to fill in. If you are interested we can arrange to have you trained in the use of the planetarium equipment.

I have two URLs for you to check out this month. The first, <http://www.asahi-net.or.jp/~rt6k-okn/> Digital Astronomy Gallery, is an amazing collection of pictures taken by a Japanese amateur. The second site, <http://sci.esa.int/huygens/>, gives lots of good information about the Huygens mission to Saturn's moon Titan. You may not have heard about this mission but I'm sure you have heard about the Cassini mission to Saturn. The Huygens probe is "hitchhiking" its way to Titan on board the Cassini spacecraft.

*Stewart Attlesey*  
[attlesey@interlog.com](mailto:attlesey@interlog.com)

## Editor's Report

It's been a great year for the Hamilton Amateur Astronomers. The new membership year begins this month, if you haven't already done so, your memberships need to be renewed now.

This issue of the Event Horizon contains the financial statements for the membership year which ended last month. Please read them and the treasurer's report on page 6. There's a lot of great observers



information in this issue, and a perfect way to use it would be to attend an observing session in Binbrook. The dates are in the Calendar of Events on page 10.

*Rosa Assalone*  
*Editor*

# 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.

### HAA Council

Chair	Stewart Attlesey
Second Chair	Doug Welch
Secretary	Marg Walton
Treasurer	Barbara Wight
Obs. Dir	Rob Roy
Editor	Rosa Assalone
Membership Dir.	Ev Rilett
HAAJ Coord	Rosa Assalone

### Councillors

Ann Tekatch  
Ray Badgerow  
Steve Barnes  
John McCloy  
Gary Sutton

### Web Site

<http://www.science.mcmaster.ca/HAA/>



## Constellation of the Month - Perseus

by Margaret Walton

**P**erseus is a large constellation lying between Cassiopeia and Taurus. The Milky Way passes through Perseus and its midnight culmination is in November. The Perseid Meteor shower radiates from Perseus each year on August 12 or 13th.

This constellation has been identified as a god or hero in many ancient cultures. To the Egyptians, it was the god 'Khem', to the Persians, 'Mithras'. It has been identified with David (holding the head of Goliath), and St. George slaying the dragon.

Today it represents Perseus, one of the great Greek heroes. His parents were Zeus and Danae. He was the great grandfather of Hercules, and the ancestor of the Persians. Due to a prophecy that said a son of Danae would kill his grandfather, Perseus' grandfather imprisoned Perseus and Danae in a wooden chest and cast them into the sea. They washed ashore on the island of King Polydectes and Perseus grew up on that island. Perseus had to defend his mother against the attentions of King

Polydectes. The King agreed to find another bride if Perseus brought him the head of Medusa. Medusa was the only mortal Gorgon; if you looked into the eyes of Medusa you would be turned to stone. Aided by Athena and Hermes, who lent him a shield, winged sandals, and a sword, Perseus travelled to the home of the Gorgons. Perseus was able to avoid the Medusa's gaze by looking at her reflection in the polished shield, and cut off her head with the sword.

On his journey back from this exploit, he came upon Andromeda chained to the rock to be sacrificed to the sea monster Cetus. He rescued Andromeda and made her his bride. When Perseus returned to the court of King Polydectes, he turned the King and his noblemen into stone by showing them the head of Medusa. While attending some funeral games in Thessaly, the prophecy involving Perseus was fulfilled when he accidentally struck his grandfather and killed him. The constellation is the form of Perseus standing, holding up the head of Medusa with one hand, and holding

his sword with the other.

### Stars

**Algol** - The name of this star means 'Demon Star', and is thought to be the eye of Medusa. It is the first discovered eclipsing binary and ranges from a magnitude of 2.1 to 3.3 with a period of 2.7 days.

### Objects

**M34 (NGC1039)** - This is an open cluster and is a good binocular or low power telescope object. It has a magnitude of 5.2 and contains about 60 stars. This is a bright, large, rich cluster.

**M76 (NGC650)** - Little Dumbbell or Cork Nebula. This is the faintest Messier object with a magnitude of 10.1. It is a bright planetary nebula that resembles M27, the Dumbbell.

**NGC869/864** - The Double Cluster. These two open clusters can be seen naked eye, or in the same binocular field. They are large, rich clusters containing 200 stars and 150 stars respectively. The Double Cluster marks the sword handle of Perseus.

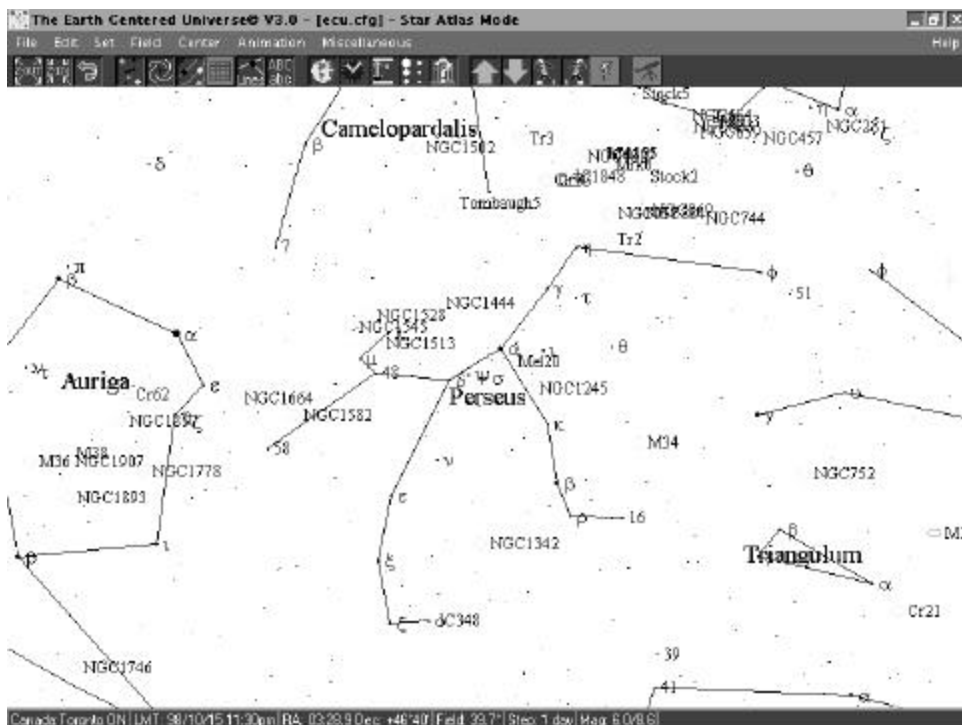
**NGC1023** - This is the brightest galaxy in a group of galaxies. It is very large, very elongated with a bright nucleus. NGC1058 is another member of this group.

**NGC1245** - A large, rich open cluster of over 200 stars. It is over 1 billion years old. This is a good binocular object.

**NGC1513** - A large, rich open cluster containing 50 stars.

**NGC1238** - A large, bright, rich open cluster containing 40 stars.

**NGC1499** - California Nebula. This is a very faint, large, elongated nebula. You need an Hbeta filter and very dark skies to see it.



(Continued on page 6)

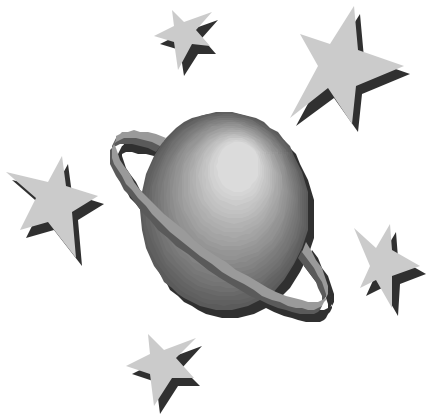
## Rob'serving Report

**B**inbrook observing nights are scheduled for the Fridays and Saturdays just before and after New Moon each month. This month it's Nov. 14, 20 & 21. Call Rob Roy (692-3245), Bret Culver (575-9492), or John McCloy (523-4359) for local weather conditions and to confirm. Remember, you don't need a scope to participate! If you have any ideas for observing events for the upcoming year, please call or e-mail me: <royrg@mcmail.cis.mcmaster.ca>

### Observing Leonid Meteors

Leo doesn't rise until just after midnight, so you might want to retire earlier than usual and set your alarm for 1-2 am. Allow for travel to a darker rural site if that's where you wish to do your viewing.

Dress warmly! It's one thing to go for a winter's afternoon hike with the family, but here it's night and much colder and you are mostly standing or sitting still. Loose fitting, wind proof, bulky clothes that can be sealed at the neck, waist, hand and foot joints are best. Your head loses more heat than any other area- protect it. The little reusable or disposable heat pads are handy to have for slipping in your pocket or even in your boots, if necessary.



If you plan on sticking it out for a while, get comfortable in a reclining lawn chair and cover up with a sleeping bag. A snack (sandwich > cookies > candy) will provide internal energy to help keep you warm. Candy gives a sudden lift, but that is quickly followed by an abrupt crash in blood sugar. A thermos of your favourite hot beverage (cider>chocolate>coffee) will keep your fluid levels up, after breathing out your moisture to winter's dry air.

Caffeine, as does tobacco, restricts the circulation to your extremities. Alcohol is a definite no-no. It not only reduces your night vision but makes you lose heat by dilating the capillaries in the skin. At the slightest hint of chilling, get up and move around briskly to produce some heat and to move it around the body.

Now you are ready. If it is your first shower, you may want, as a minimum, to count the number of meteors that you see in a given period of time. You should be looking about 45 degrees away from the apparent source of the meteors, in this case, the constellation Leo, well above the horizon. Once your appetite has been whetted, there are many things you can do, drawing each meteor on a star chart, estimating its magnitude, recording its time and/or noting unusual colours and features. Veterans have learned to use a time-set tape recorder and to work in groups of two or more. Don't forget to take a break, sooner than later, if you're a novice. Your eyes will play tricks on you after a while. There's a tonne of information available out there, if you crave more detail.

### Jupiter's Satellite Phenomena

Possibilities are: a TRANSIT of a satellite or its SHADOW across the face of the planet, an OCCULTATION as it passes



behind the planet, or an ECLIPSE by Jupiter's shadow.

Shadow transit times which occur between evening and morning twilight are listed below. Times are converted to Eastern Standard Time (EST). 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 when the other occurs before evening twilight or after Jupiter has set.

A window of UT (Universal Times) is given below so you can search in "Sky and Telescope" and in the "RASC Handbook -1998" for other events you may wish to observe. Events on either side of this window occur either before evening twilight or after Jupiter has set. To get your local EST subtract 5 hours from the UT shown for each event.

Nov. 14 Europa 23:41 ---> \*  
 15 Io 20:24 ---> 22:38  
 22 Io 22:20 ---> 00:34 (23rd.)  
 24 Io \* ---> 19:03  
 25 Europa \* ---> 18:13  
 Ganymede 19:08 ---> 22:12  
 30 Io 00:16 ---> \*

Dec. 01 Io 18:45 ---> 20:59  
 02 Europa 18:12 ---> 21:49  
 Ganymede 23:11 ---> \*  
 09 Io 21:48 ---> 23:25

For other events, search the table in the "RASC Handbook", pages 166-7, between 23:00-06:00 UT. Jupiter is setting earlier each day. "Sky and

(Continued on page 5)

(Continued from page 4)

Telescope" also includes Jupiter's satellite phenomena in its monthly issues. It's great stuff to observe. Have fun!

### **Jupiter's Red Spot**

You can check the list below to see when the Great Red Spot is likely to be visible on Jupiter. After each date the meridian transit time is given in EST to the nearest hour, so you will see it near but not necessarily on the centerline of the disk at that time. Because Jupiter's day is less than 10 hours, you often may have two transits in one day (morning then evening) or two per night on consecutive days (evening then morning). If you want exact transit times, "Sky and Telescope" lists them in Universal Time for each day of the month.

Nov. 13(1am)(9pm), 15(10p), 16(6p), 18(12a)(8p), 20(10p), 22(11p), 23(7p), 25(9p), 27(10p), 28(6p), 30(12a)(8p).

Dec. 2(9p), 4(11p), 5(7p), 7(9p), 9(10p), 10(6p), 12(12a).

### **Monthly In-Sights**

#### **November**

14- Jupiter is stationary then moving eastwards.  
17&18-am Leonid Meteor Shower- could be spectacular!  
27- Moon 0.6 degrees S of Jupiter.  
28- Ceres at opposition as it passes eastward out of the Hyades, 1 deg. north of Aldebaran. Binocular sight!  
29- Saturn just east of the Moon.  
30- Saturn just west of the Moon.

#### **December**

04- Earliest nightfall.  
05- Earliest sunset.  
13&14- Geminid Meteor Shower- best after midnight.

### **The Planets**

Mercury is an evening "star", getting

lower in the early evening sky until Nov. 20.

Venus is too close to the Sun for observation until Jan. 1999.

Mars rises at about 1 am in Leo. Very small size- not much of a telescope object, but steadily increasing in apparent diameter.

Jupiter is in Aquarius and shines brightly until about 1 am. You can't miss it as the brightest object to the south. Stationary on Nov. 14, after which it resumes direct eastward motion.

Saturn is visible all night long in Pisces. Its fairly large disk and the appreciable tilt of the rings continue to make it a nice fall object! Try to find the Cassini Division close to the outer edge of the rings. The smaller satellites Rhea, Dione and Tethys are challenges for small telescopes. Enceladus is a little more difficult.

Neptune & Uranus are a bit west of Jupiter at the eastern edge of Capricornus in the evening sky.

\*\*\* DON'T FORGET TO TAKE ALONG YOUR EVENT HORIZON WHEN YOU GO OUT OBSERVING JUPITER \*\*\*

**Rob Roy**

**Observing Director**

[<royrg@mcmaster.cis.mcmaster.ca>](mailto:royrg@mcmaster.cis.mcmaster.ca)



**Did you know that...**

the Milky Way and the Andromeda Galaxy are the largest in our "Local Group" of just over 30 galaxies.

**Rob Roy**

## **HAA E-mail Checklist**

**O**n Mon., Oct. 5, an e-mail notice was sent out so we can check and update our membership's e-mail address book.

If you DIDN'T get this notice it's because:

- a- you're not on our list
- b- you're on the list but we don't have your correct address
- c- you don't even own a computer and furthermore you don't give a hoot!

If you fit into a or b and want to be included in notices sent out for events such as BCA observing nights or meeting dates and speakers, please send a message to [royrg@mcmaster.cis.mcmaster.ca](mailto:royrg@mcmaster.cis.mcmaster.ca) and he will add you to the the address book.

*Rob Roy*

## Magazine Discounts for HAA Members

**A**s a member of the Hamilton Amateur Astronomers you are eligible for subscription discounts for the following magazines:

*Sky and Telescope*: \$37 U.S. funds per year (12 issues)



*Astronomy Magazine*: \$35 U.S. funds per year (12 issues)

The regular rates for Canadian subscriptions are:

*Astronomy Magazine*: \$50 US  
*Sky and Telescope*: \$ 46.95 US

That's a savings of \$10-15 US or \$15.50-23.25 CDN!!

If you are interested in subscribing to either of these magazines or wish to renew an existing subscription at club rates, please contact Ann Tekatch at 575-5433. You need to fill out your subscription form with either an enclosed US money order, or with your VISA number filled in. All orders must be given to Ann, who will send them on to the appropriate magazine.

## Treasurer's Report

*Barbara Wight*

**T**he financial statements for the year ended October 31, 1998 have been published in this issue of the newsletter. As you will notice, this year resulted in a deficit of \$500.00. The main reason for this is the decrease in revenue from our public education program. In the past, we have been fortunate to benefit from the efforts of Grant Dixon who hosted many planetarium shows. We ask all of our members to consider contributing their time and efforts to

revive our public education program, not only for the financial benefits to the club, but for the educational benefits to the public. From our healthy bank account from last year, we managed to replace our slide projector system which, as the meetings have shown, was well worth the investment. We encourage any input from our members as to future programs and investments.

We are a charitable organization, so any contribution will result in a tax receipt being issued.



## Cosmology Discussion Group

**J**oin our philosophical study of the origins, evolution, and natural structures of the universe.

December's topic is "The new millennium and the accelerating accumulation of knowledge about our cosmos."

New topics welcome. Discussion is informal.

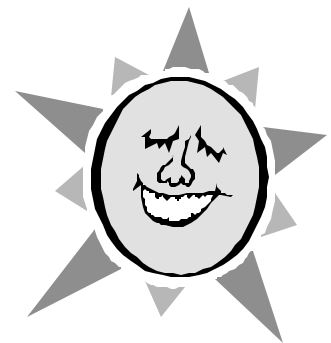
The next meeting is Saturday, December 5th at 8pm in McMaster's Burke Science Building room B148.

For further information call Larry at 529-1037.

## Perseus...

*(Continued from page 3)*

**NGC1579** - There are several stars involved in this bright, large reflection nebula, containing dark lanes.



**HAMILTON AMATEUR ASTRONOMERS  
BALANCE SHEET  
AS AT OCTOBER 31, 1998**  
(Unaudited)

<u>ASSETS</u>	Oct 31 1998	Oct 31 1997
Bank	73	1641
Investments	4000	4000
Inventory	392	288
Prepaid Expenses	70	70
Total Current Assets	4535	5999
Fixed Assets -Equipment	948	0
Total Assets	5483	5999
 <u>LIABILITIES</u>		
Deferred Revenue	510	525
 <u>EQUITY</u>		
Opening Balance	5474	4081
Current Year	-501	1393
Closing Balance	4973	5474
Total Liabilities and Equity	5483	5999

Prepared by Barbara Wight, Treasurer

**HAMILTON AMATEUR ASTRONOMERS  
INCOME STATEMENT  
YEAR ENDED OCTOBER 31, 1998**

(Unaudited)

<u>INCOME</u>	Oct 31 1998	Oct 31 1997
Donations -Membership Fees	1395	1635
Donations -Other	75	80
Public Education	486	1434
Sweatshirt/T-Shirt sales	396	0
Observers Handbook/Calendar sales	282	394
Book sales	0	24
 Total Income	 2634	 3567
 <u>EXPENSES</u>		
Newsletter printing	750	469
Newsletter postage	522	445
HAJA	73	46
Speakers	70	25
Public Education	52	84
Promotion	194	0
Sweatshirt/T-Shirt cost of sales	392	0
Observers H/B/Calendar cost of sales	288	372
Insurance	621	594
General Administration	3	76
Post Office Box rental	70	63
Donation Expense	100	0
 Total Expenses	 3135	 2174
 <u>SURPLUS/DEFICIT</u>	 -501	 1393

Prepared by Barbara Wight, Treasurer





## "Astronomy": an Interesting Word

- Rob Roy

**T**his word comes from the Greek via French and Latin. It means literally 'watch the stars.' What is interesting is that, at first, no distinction was made between astronomy and astrology, as they were used interchangeably. In fact, when a distinction first began to be recognized between the two, it was the opposite of that now accepted: astrology meant simply 'observation' whereas astronomy signified 'divination.' The current assignment of meaning was not fully established until the 17th. century. So, don't be so upset the next time someone says you do "astrology" or calls you an "astrologer." They may just be harping back to a previous life!

## More T-shirts and Sweatshirts!

**G**ood news! The technical problems we had with Doug Welch's graphic t-shirt design have been resolved and we are now accepting orders for shirts with the "To infinity and beyond!" design.

Prices have been tentatively set at \$28 each for the sweatshirt and \$14 each for a t-shirt.

The shirts are oatmeal in colour with a large scenic design on the front. (I will try and have a copy of the graphic at the November and December meetings.)

Before we can go ahead, we need 20 confirmed orders. If you are interested in getting one of these beautiful shirts, fill out the order form below and either mail it or

hand it to me. Make your cheque payable to Hamilton Amateur Astronomers.

*Ann Tekatch*

NAME:

PHONE:

EMAIL ADDRESS:

### SWEATSHIRT

SIZE: SMALL MEDIUM LARGE X-LARGE

### T-SHIRT

SIZE: SMALL MEDIUM LARGE X-LARGE

## RASC Calendars and Observer's Handbooks

The Observer's Handbooks and RASC calendars have been ordered and will be available at the November and December meetings. Handbooks will cost \$14 and calendars \$8. At these prices, they won't last long! Buy yours early!

## CALENDAR OF EVENTS

- November 14, 20, 21, 8:00pm
  - Tuesday, November 17, 7:00pm
  - Friday, November 27, 7:30pm
  - Saturday, December 5, 8:00pm  
and
  - December 12, 18, 19, 8:00pm
- 4359.

**BINBROOK OBSERVING NIGHTS** - For confirmation or directions call Rob Roy at 692-3245 or Bret Culver 575-9492 or John McCloy 523-4359.  
**HAJA MEETING** - McMaster Burke Science Building, room B148. For more information contact Rosa Assalone at 540-8793.  
**HAA COUNCIL MEETING** - At the home of Margaret Walton.  
**COSMOLOGY DISCUSSION GROUP** - Topic is "The new millennium the accelerating accumulation of knowledge about our cosmos." At McMaster Burke Science Building, room B148.  
**BINBROOK OBSERVING NIGHTS** - For confirmation or directions call Rob Roy at 692-3245 or Bret Culver 575-9492 or John McCloy 523-