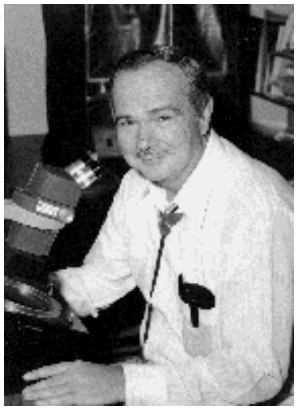
Regulus

Newsletter of the RASC Kingston Centre Issue 97-03
May/June 1997

1997 General Assembly

This is it. The last newsletter before the "storm". The GA Committee is insane, overworked, ignoring their friends and family and in general drinking heavily. All right... some of them are... all right... I am. As we go to press (May 6th) we have received 64 regular registrations. This takes a load off... the overwhelming fear that somewhere, some banker was taking a look at my house and seeing what he could get for it on the open market.
The National RASC WWW home page has moved to our new domain: *http://www.rasc.ca/*

David Levy submitted the following:



Eugene M. Shoemaker is likely the most famous planetary scientist alive. Born in 1928, Gene received his college education at Caltech, and his Ph.D. from Princeton. For his thesis he made the first positive identification of the impact origin of a crater on Earth-- the famous Meteor Crater east of Flagstaff, Arizona. Some five years later, in the early 1960s, he established a similar origin for Germany's Ries Basin. A leader of the science teams for the Ranger and Surveyor lunar mission programs, he helped determine the cratering rate on the Moon, which was essential to understanding how Earth was battered over billions of years as well. He has devoted many years to identifying and studying other craters on Earth, particularly in Australia.

In the early 1970s Gene began a program of searching for the impacting objects-- the potential Earth hitting asteroids and comets. Gene's wife, Carolyn, joined him in this project a decade later. Working with other scientists like Henry Holt and David Levy, the Shoemakers took more than 26,000 exposures of the night sky from Palomar's 18-inch telescope. The couple has found 32 comets in this way.

In March 1993, the Shoemaker-Levy team made its most important discovery, a comet that, a few months earlier, had been catastrophically disrupted into many pieces after a close approach to Jupiter. In July 1994, Gene watched as the 21 pieces of this comet slammed into Jupiter at enormous velocity. It was the culmination of his life's dream: after contributing so much to understanding the importance of impacts on the history of Earth and of life on Earth, Gene actually got to see his theories confirmed in a spectacular way. The impacts of Comet Shoemaker-Levy 9 were inspiring, and produced the most dramatic explosions ever seen in another world.

1997 General Assembly

Standard Disclaimers As of 1997 Feb 24th we are happy with the schedule and have no intention of changing it, but we realize that circumstances will change and almost certainly *something* will change. This will give you an idea in order to make travel arrangements.

NC Reps & other delegates should plan on arriving Friday afternoon/evening, as well as anyone wanting to do the C&E Museum, Tour Trolley, or Miller Hall Tours on Saturday morning.

At the very latest arrive by 17:00 on Saturday to register and attend the opening ceremonies & our first invited speaker.

Friday June 27th

12:00 registration opens and will close at 21:00

19:00 Walking Tour #1 for Miller Hall (Geology & Crater), 20:00 Stirling Hall (Astronomy) & Observing Session at Ellis Hall

Saturday June 28th

07:00 Breakfast is included in the room rate and will start at 07:00 Saturday-Tuesday

08:00 registration opens and will close at 17:00

07:45 Tour Trolley of Kingston return by 10:00

09:00 National Council Meeting #1 booked until 17:00

10:00 Communications Museum Tour return by 11:15

11:30 Old Fort Henry Tour (includes lunch) return by 16:00

13:00 Panels - light pollution, slides & videos, Sudbury Neutrino Observatory

19:00 Opening Ceremonies & Invited Speaker: Terry Dickinson

21:00 Wine & Cheese Reception

The Centre

The Newsletter of the Kingston Centre of the Royal Astronomical Society of Canada

Newsletter Submission Info:
Deadline is the Friday before regular meetings in odd numbered months. The preferred method is EMAIL, then disk, lastly paper (I hate retyping... too many mistakes happen). email: ***kell@cliff.path.queensu.ca***
Fax: 1-613-545-2907 (with cover page to Kevin Kell)
Post: Box 2033 Kingston Ontario K7L5J8 Canada
ascii or most major word processors (WP6.1 for windows preferred) via email or 3.5" DOS floppy disk

Our Web page can be found at:
http:/www1.kingston.net/~rasc

Officers and Executive Council
President: Peggy Torney
Vice President: Christine Kulyk
Secretary: Laura Gagne
Treasurer: Kim Hay
Editor: Kevin Kell
National Council Rep: Kim Hay
Alternate Rep: Susan Gagnon
Librarian: Jim Towgood
Honorary President: David Levy

To Send email to all members of the Kingston Executive, address it to: ***rascexec@cliff.path.queensu.ca***

To join the National Email List, send a message to:
listserver@astrotech.stmarys.ca
In the body of the message put:
subscribe rasclist Your Name (Center)

Centre Location: RASC - Kingston Centre, PO Box 1793, Kingston, Ontario K7L 5J6 Canada
Approx Lat: 44.5 Long 75.4

Upcoming Meetings

Friday 1997 May 09 Cathy Hall & Walter McDonald & Doug Clapp, RASC Kingston Centre, "Star Hill Inn Expedition"
Friday 1997 June 13 GA Prep Meeting
1997 June 28 - July 01 General Assembly
Friday 1997 July 11 Post GA Stress Blowout; Kevin Kell, RASC Kingston Centre, "Reports from Mars" and Dr. Jayanne English of Queen's Physics Dept., is a postdoctoral fellow in astronomy. Her talk will be on "Visualization in Astronomy"--the many different tools and techniques that astronomers now have for visualizing astronomical concepts.

Friday 1997 August 08 TBA, maybe postponed, maybe cancelled. Decision at May meeting.
Friday 1997 September 12 Member's Night
Friday 1997 October 10 Annual Elections
Friday 1997 Nov 14 TBA
Friday 1997 December 12 Annual Holiday Dinner & Awards Regular Meetings of the Kingston Centre are held on the 2nd Friday of each month (unless noted otherwise) at 20:00 local time in **Room B-201, Mackintosh-Corry Hall** at Queen's University (parking available off Union Street at Frontenac).

Regulus is published 6 times per year. Views and opinions expressed herein do not necessarily reflect the official position of the Royal Astronomical Society of Canada or its officers and members.
Subscriptions: Members of the Kingston Centre receive Regulus as a benefit of membership. Non-members may subscribe for $15 per year.
Advertisements are free to members of the Centre. Commercial advertising is $25 per half page, $50 for full page and must be camera ready copy.
Contributions are more than welcome. Submitted material may be edited for brevity or clarity.

From The Editor

Looks like there were more omissions and out of date info on last issue's membership list than I would have liked. Several members have sent in corrections, which have been added in.

From The Prez

zip

From The Secretary

Royal Astronomical Society of Canada - Kingston Centre
Minutes -

Meeting of Friday March 14, 1997

Meeting called to order at 8:04 pm
Christine Kulyk presiding, Peggy Torney absent due to poor weather.

Announcements:

Newsletters are ready. GA registration packages are also ready, and are at the back of the room to be picked up by members present. All others will be mailed tomorrow.
The next GA meeting is scheduled for Friday, March 21, at 5:30 pm at 797 Candover Crescent. It will be a pot luck supper/meeting.

Treasurer's Report:

We have 134 members to date. For the GA fundraising committee, There was a 50/50 draw held this evening. Kevin Kell won. Tickets were sold for a draw to be held in April for a beautiful poster of the Milky Way - courtesy of Kevin Kell (we forgive him for winning the 50/50 draw), and the second prize will be a portrait of Comet Hyakutake donated by Leo Enright (thanks Leo).

Astronomy Day Committee:

This year's Astronomy Day display will be in the centre court of the Cataraqui Town Centre. It will be held on April 12, 1997 from 8:00 am to 6:00 pm, followed by observing across from Grant Hall, in association with Queen's University's Astronomy Department (weather permitting).

Judith Irwin:

Next weekend is Astronomy Weekend at Queen's. Larry Widrow will be giving a public lecture entitled "Our Universe : From the Big Bang to the 21st Century" . It will be given in Stirling Hall, room D. Saturday and Sunday Ellis Hall will be having an open house from 7:30pm until whenever.
Queen's is having a fundraising campaign to renovate the observatory, and purchase a new telescope. They hope to raise $140 000. Good Luck. (What are they doing with the old scope???)

Dieter Brueckner:

April 3rd Henderson School's Junior Astronomy Club will be having a star party. He needs volunteers with equipment, who are willing to attend from 7:30 pm until about 9:30 pm. The rain date will be the following evening, Friday. The event will be held at the school.

National Council Representative:

The two motions from the last meeting were presented at the National Council meeting last month. The first one was well-debated and will be brought up again at the meeting during the GA. Kim hopes it will be included in the GA guidelines. The second motion was dropped because it set a limit to the amount of money to be loaned.

Observing Reports:

[Pages and pages of Comet-Hale Bopp observations omitted. Ed.]

Miscellaneous:

Birders Nature Store offers us 10 percent discount (RASC members). Christine has some 15 % discount coupons if anyone wants one. GA committee needs someone to do a display about Kingston area Astronomers - past and present.
Kim Hay needs pictures of star parties for the membership and promotion committee to make a collage which will appear in sky news.

Guest Speaker: Steve Manders

Steve gave another fascination talk about the Sun and its role in Ice Ages on Earth. This is part of a series of talks he has given us, which follows his current research into the subject. He offered possible solutions to problems astrophysicists are faced with in determining the age of stars which appear to be older than the universe itself. Following the talk, Steve fielded several questions from an interested audience.
Meeting adjourned at 10:53 pm.

Meeting of Friday April 11, 1997

Meeting called to order at 8:14 pm
Tonight's draw was for a beautiful poster of the milky way, won by John Hurley, second prize was a photograph of comet Hyakutake, taken by Leo, and won by Sue Faris (another Sue). The 50/50 draw was won by Theo Micholias. CONGRATULATIONS TO ALL OUR WINNERS. (Unclaimed prizes will be snapped up by the centre secretary).

Treasurer's Report:

The end of February balance was $3744.86
The final balance to date is $2699.02

We have a new member, Mr. Donald Cropp. The vote was unanimously in favour. Welcome to Kingston Centre
A copy of the Hale Bopp guide book was donated to the centre library. Members can have a copy for $10.00 plus $0.70 tax. So far 6 registrations have been received for the GA.
IMPORTANT NOTICE!!!!!!!!!
There will **NOT be** an early general meeting for an amendment to the constitution. In order for our centre to issue tax receipts for the GA, we must have a tax number. We cannot get this number until we add a non-profit clause to our constitution. All amendments must be voted on by the general membership at a general meeting. **Because we cannot get through the government paperwork in time, this has been deferred to the October Meeting.**

Dieter Brueckner:

Dieter told the centre about the fundraiser for the Queens' observatory. [Ed- see article on page xx]. Judith has a list of stars of various prices, starting at 5th magnitude for $25.00 and going up to $2500.00 for famous stars (or more if you like - it's tax deductible). Everyone NEEDS to adopt a star. What a neat gift for an astronomer. You get a certificate and information about your star, a tax receipt, and your very own star that you can see from Kingston, and show your friends.

Astronomy Day:
April 12 is Astronomy Day. We will be at Cataraqui Town Centre in the main foyer at the food court. Drop by if you have time to say hello and talk to the public. (A note after the fact - it was a huge success. We made the local paper with a nice ad for Celestron. There were hundreds of people and
everyone seemed very interested in the sky. Cathy did a masterful job, as usual. She deserves a huge pat on the back (applause etc!). It was also great fun for everyone there. Next year, be there!).
Bill Broderick:
Belleville Astronomy Club, of which he is president, has been very busy. They had Terry Dickinson out to talk to them on February 24 (lucky!). They had about 350 people at the meeting (wow!). In May and June they will have
a mall display with Hastings County Museum in a downtown mall. Bill will advertise the RASC.
Christine Kulyk:
She has had calls from both the media and the public about tonight's education workshop and astronomy day. She had a radio interview regarding astronomy. At Terry Dickinson's lecture last Monday there was standing room only in Grant Hall (what will we do at the GA?). Christine and Sue Gagnon handed out literature. Christine has copies of David Levy's book, Comet Quest for sale for $15.00 each.

Tonight's meeting was a pot pourri of astronomical interests. We had talks by Laura Gagne, Dieter Brueckner, and Peggy Torney interspersed with gorgeous slides by Kevin Kell, Cathy Hall, Leo Enright, Mark Kaye, Vic Smida, and Kim Hay.
The education talks covered age groups from preschool to adults in situations of the classroom, the public star night, qualifying scouts and guides in astronomy badges and just sharing with your neighbours. Peggy advised us to travel in pairs so that one person can do the telescope while the other one does the talk or slide show. Dieter reminded us that just taking someone out to a dark site and telling them to look up can be a very rewarding experience. Try that the next time you go to a campsite where there are non-astronomers and give someone the gift of aahhhhh! The slides were breathtaking, as usual. Cathy showed us that you don't
need anything fancy to take fabulous comet shots, and she had proof of that!
Mark and Leo dazzled us with some of their latest work. Kim and Kevin also had some impressive shots, especially Kevin's UFO shot (I want a copy of that one!) . Vic tested our constellation awareness (I still can't get Cassiopeia, even though I've seen that shot a dozen times!). His comet shots were breathtaking (you should see the ones that just came out of his camera!!!!)

The meeting went on past 11:00pm, so the secretary left early. I needed my beauty rest before Astronomy Day (not that it helps, but all the GA travelling etc takes its toll on a body). Sorry, no observing reports. I'm sure someone talked about Thursday night's green aurora caused by Monday's solar flare. Hank Bartlett had pictures at the mall.

From The Treasurer

The Kingston Centre-RASC has been trying over the last number of years to obtain its own Non-Profit Taxation number. I have been conversing with Pat Sargent at Revenue Canada on our file (94-552) , and she says there is one amendment we need to add to the Kingston Centre By-laws, making it Article Number 11. The article is a Non-Profit Clause stating the following:

"The Organization shall be carried on without purpose of gain for its members and any profits or other gains to the organization and shall be used in promoting its objectives."

We will also need to redate our Constitution (January 1,1997 according to Pat Sargent), and have three Kingston Centre Officers sign the Constitution.

According to our Centre Bylaws any change to the constitution needs to have the following done:

1) This Constitution may be amended at the Annual Business Meeting by a 2/3 vote by ballot of the members voting.

2) Any proposed amendment to the Constitution must first be sent to the Secretary, in writing, at least one month before the next Annual Business Meeting, where upon the Secretary shall send before such Annual Business Meeting a copy of the Proposed amendment to every member.

This Item has been postponed until the Fall

Astronomy Day

The Stars in Kingston - Saturday April 12, 1997
by Cathy Hall

On Saturday April 12th, RASC Kingston celebrated International Astronomy Day - with fanfare, our name in lights, and the biggest display we've hosted in years! The setting was Cataraqui Mall, centre court, and we were the prime attraction...

We had a huge display - with colourful astronomical posters mounted on easels, a large number of tables in a semi-circular setting, with demonstrations of astronomical software, an electronic astronomical quiz board, a movable solar system model, astronomical 'stamping' for the kids, and reams of free handout material on astronomy and local astronomical groups.

We had 7 telescopes for demonstration to the public - from an Astroscan to a bright red 13 inch Dobsonian. In

case the public eye didn't catch our displays with all this.... we had brightly coloured red, blue and yellow balloons with stars, adorning all our displays! It was festive, and lots of fun!

A special feature this year was the display by Queen's University on their 'Adopt-a-Star' program, a fundraiser for upgrading their observatory facilities. This is a very worthwhile cause, where the donor receives both a tax receipt and a letter suitable for framing, with the name of the star they 'adopted'. It also makes a great gift idea. For more information on the program, please check out the Queen's University web page at:
http://www.astro.queensu.ca/observatory
or contact the Observatory at (613)-545-2711 or (613)-545-2717.

We had an incredible team effort for our Astronomy Day festivities - joint RASC / Queen's University / Belleville Astronomy Club. Many thanks go out to the following people, from a number of different towns and cities, whose names
are listed here in alphabetical order:

- **Doug Angle** of Sydenham, for volunteering for the (subsequently snowed out!) evening observing program, for which he was planning to bring his 4 inch refractor...
- **Hein van Asperen**, a long-time Kingston member living in Brockville, for bringing both his wonderful solar system model - a real hit with the public - and his family and granddaughter as well!...
- **Hank Bartlett** of Newburgh (a hit with the ladies in leather!), for demonstrating his telescope all day...
- **Bill Broderick** of Shannonville, for making sure we had lots of RASC Kingston brochures on hand...
- **Dieter Brueckner**, for helping with all the various displays, and providing us with wonderful postcards of Comet Hyakutake for the public... (if interested in his astronomical postcard production, contact him at (613)-384-8033...
- **John Coughlin** of Belleville, for coming by to chat and making sure we were all managing OK...
- **Tom Dean**, for helping with transportation and setup of the RASC Kingston's big blue 10 inch Dobsonian telescope, and helping demonstrate its use to the public...
- **Leo Enright** of Sharbot Lake, long-time Kingston member, for providing an incredible photographic display - of comets, the solar system, and deep sky objects... thanks also for his sales and autograph signing for the Beginners Observing Guide... for demonstrating his bright red Astroscan telescope to the public... and for offering his help for the evening observing...
- **Laura Gagne**, travelling Kingston Secretary, for taking time out from her G.A. publicity tour (!) to bring her 8 inch Celestron telescope, and tirelessly demonstrating it all day... for delighting the kids with her electronic astronomical quiz board... and for offering to help with the evening observing program as well...
- **Kim Hay** of Perth Road, much-photographed (!) Kingston Treasurer, for helping out with all the various displays...
- **Ruth Hicks,** for her photographic coverage of the event... and Terry Hicks, for inspecting the displays for us...
- **Dr. Judith Irwin** and **Kathy Perrett** of Queen's University for arranging a joint evening observing session with Queen's, and for combining their Adopt-a-Star program with our Astronomy Day festivities... also thanks to Dr. Irwin for writing a wonderful newspaper article for 'Kingston This Week', complete with one of her Hale-Bopp photos!...
- **Linda Jackson** and **Rhonda Gilchrist**, of Cataraqui Mall, for providing us with their prime location in the biggest mall in Kingston, our name up in lights on their big outdoor billboard, and all their assistance...
- **Kevin Kell**, Editor of Regulus, our Kingston newsletter, for helping with setup and takedown of the Astronomy Day displays, and providing accommodation for your roving Astronomy Day Coordinator... and for his offer of help with the evening observing program...
- **Christine Kulyk**, Kingston Vice President, for making all the media contacts, doing some incredible radio interview work on our behalf, and helping 'man' the displays... we had people coming in all day talking about her interviews!...
- **Steve Manders** of Harrowsmith, for bringing his computer system, and demonstrating wonderful astronomical software to the public - this was a real hit... the kids just loved the 3-D glasses!!...
- **Walter MacDonald** of Oshawa, for the use of his display on astrophotography...
- **Brenda Shaw**, for helping demonstrate the astronomy quiz board, showing the kids the constellations on the colourful inflatable star globe, and helping the little ones make stamped astronomical patterns on paper...
- **Joe Shields** of the Belleville Astronomy Club, for driving in from Belleville with his wonderful bright red 13 inch Dobsonian, and for providing information brochures on the very active club there (for more info, phone (613)-966-6768)...
- Sky & Telescope, for providing hundreds of their full-colour brochures "Getting Started in Astronomy", very well-received by the public!...
- **Peggy Torney** of Sharbot Lake, Kingston President, and the Sharbot Lake school for loaning us easels for our displays... and **John Hurley**, of RASC Windsor (soon to be RASC Kingston...) for helping get both Peggy and the easels to Kingston...
- **Jim Towgood**, Kingston Librarian, for bringing his portable 4.5 inch Schmidt-Cassegrain telescope and providing much-needed guidance for many inquisitive

youngsters!... and for offering to help with the evening observing...
- **Norm Welbanks** of Yarker (who I'm sure now has laryngitis from talking non-stop to the public!), for bringing his 8 inch Schmidt-Cass and demonstrating it to the willing crowds!... and for offering to help with evening observing as well...
- and thanks to any others whose names I may have accidentally omitted... in the crowds of hundreds that attended!
It was an incredible Astronomy Day, and we could not have done it without the help of everybody. It was a real team effort - and I was pleased to have been the organizer. With the interest in Comet Hale-Bopp at a peak, it was an ideal time to talk to the public about a passion we all share!
For those of you interested in finding out more about RASC Kingston, please visit our web site at: *http://www1.kingston.net/~rasc* or phone (613)-549-1461. Our meetings are held on the second Friday of each month, starting at 8.00 pm, at Queen's University, in Room B-201 of Mackintosh-Corry Hall. Visitors are welcome!

National News

A newsletter initiative has been started via the email list hosted at National. The idea is to have each centre's newsletter published in a standard format and hosted by the National Web Site. A single point of contact would be a person receiving a newsletter in whatever computer format it was created in, convert it to the new standard (proposed is the Adobe Acrobat Reader, free for personal use). Expect to hear more by the end of the summer.

National Domain Name by David Lane
I'm pleased to announce that the RASC now has its own registered internet "domain name" which is 'rasc.ca'. I'd like to thank John Criswick of the Ottawa centre for looking after the details of the application and for hosting our internet addresses on his server at conveyor.com. The RASC web site itself will continue to be hosted courtesy of Saint Mary's U. [Ed: The national web page is now at ***http://www.rasc.ca/***]

General Assembly News

The GA Travelling Road Show has hit: Hamilton (Mark Kaye), Ottawa (Peggy Torney), Montreal (Laura Gagne) and has reported excellent responses.

Fund Raising Garage Sale:
Saturday May 31st at [xxx] Crescent (Kingston Township off Taylor-Kydd,
08:00-15:00 or so. Drop any donations off to Kevin (xxx-xxxx) or bring them by Saturday morning. You can also drop by and sell your own stuff and leave a donation of $$ later!

BBS News

The following Kingston BBS's are RASC support boards:
✶Observatory East (Mark Kaye) FidoNet 1:249/109 2400-28800 bps 8N1V.34
✶ StarStream (Kevin Kell) FidoNet 1:249/112 14400-28800 bps 8N1V.34
✶ Moonlight Cascade (Kim Hay) FidoNet 1:249/133 2400-28800 bps 8N1V.FC

Submissions from the Members

THE HORSEHEAD AT LAST!

By Ray Berg - Crown Point, Indiana

For years, I have admired photographs of M33, the famous Horsehead Nebula in Orion, and wondered what it would take to actually see it first hand at the telescope. While this dark nebula superimposed on a very faint emission nebula has been documented as being visible with 6 to 8-inch telescopes under very dark skies, it has always eluded me under similar conditions. At star parties, I have badgered fellow amateurs with 10 to 13-inch Dobsonians to search out the region near Zeta Orionis hoping the added aperture would give me an edge in detecting this elusive object but to no avail.

On March 10th of this year, a dozen ardent observers from northwest Indiana, including myself, trekked out to a dark sky site that we maintain approximately 35 miles out from urban light pollution to catch some of the last of the winter sky beauty. Darkness set in with excellent transparency. As usual, I was concentrating on faint variable stars with my 8-inch Schmidt-Cassegrain while everyone else was hunting "fuzzies". Shortly after full darkness fell, the owner of an 18-inch Obsession yelled "Horsehead!" Could it be true? As everyone hurried for a look, I sauntered over too, wondering if the ghostly horse was going to elude me again. As I

peered into the eyepiece, I saw only a couple of field stars with no sign of even IC 434, the faint emission nebula that forms the background behind the dark dust cloud shaped like the head of a horse. Cupping my hands around the eyepiece, my eye strained with averted vision for the faintest trace of photons from the emission nebula, which Roger Clark called in his book *Visual Astronomy of the Deep Sky* "one of the most difficult deep-sky objects to observe visually", and "slightly harder to detect than the Merope Nebula in the Pleiades." Really! And then, suddenly! There it was - the long pale glow of IC434; how could I have missed it before? And the Horsehead? Yes! Ever so subtle, it popped in and out of view (an effect of varying seeing conditions?) at times being visible for 30 to 45 seconds at a time then fading away again. It was beautiful! So what were the keys to success with this beastie on this occasion? Very clear, transparent skies, clean and well collimated optics with large aperture (18-inches) and equally as important, use of a H-Beta filter at the eyepiece. Can it be done with less? Some observers say they can but I have the feeling that they may be exceptional and that ordinary run-of-the-mill observers like me need all the help we can get. Just don't ever give in....keep looking up!

HALEBOP1. - March 16, 1997, before sunrise. Tripod mounted camera with 50 mm lens at f/2; 15 second exposure on Kodak Gold 400 print film.

HALEBOP2. - April 8, 1997, after sunset. 8-inch Schmidt-Cassegrain at prime focus; 40 second exposure on Kodak Gold 400 print film.

Taken by Ray Berg, Crown Point, Indiana Member - RASC Kingston Centre& - Calumet Astronomical Society

Science Fair Report

by Brenda M. Shaw

The 1997 Frontenac, Lennox & Addington Science Fair, held on April 4 & 5 at MacArthur College, was a huge success. Although none of the astronomy projects made it into the medals, 123-year-old Kevin Thompson received the RASC Special Award for his project, "To Infinity & Beyond". The project consisted of a brief tour of the night sky and a few tips on finding your way around ("arc to Arcturus", etc.), plus a map of the Ursa Major/Cassiopeia region (Christmas Tree lightbulb stars in a box with a peephole - and a tinfoil comet placed so as to represent Hale-Bopp in late March. The award consisted of a 1997 RASC calendar and a copy of The Beginner's Observing Guide. Congratulations Kevin!

[Ed: We also printed up a gorgeous 8.5"x11" certificate, which is now wending it's way out to him.]

The Queen's Observatory

by Queen's Astronomy Research Group

Astronomy has been part of the Queen's community since as far back as the 1850's. The original Observatory was constructed in City Park, just east of Queen's campus, and housed a 6.25-inch refracting telescope. In the early 1860's, management of the observatory was officially transferred from the City of Kingston to what was then ``Queen's College".

The Observatory was relocated in 1881 to a new building on Queen's campus. In 1909, the facility was moved yet again, to a site at the foot of University Avenue where it remained until it was demolished in 1946 to make way for McLaughlin Hall. In 1958, a small observatory was constructed on the roof of Ellis Hall, the Civil Engineering Building. A 15-inch Cassegrain reflecting telescope was installed and the Observatory officially re-opened in November, 1960.

The Queen's University Astronomy Research Group (QUARG) and Queen's University have begun a fund-raising campaign in order to upgrade our 37 year-old observing facilities. Our goal is $140 000, a sum which would allow the purchase of a brand-new, state-of-the-art telescope, a new observatory dome (the current dome dates back to the early part of this century), an observing deck for public viewing sessions, in addition to a number of other upgrades to our facility.

Our fund-raising efforts are underway! For fixed donations, individuals can adopt a star visible in the Kingston sky. To show our appreciation, we will send you a certificate and a letter of thanks with a description of your adopted star and the constellation in which it is found. Pick a star in your favourite constellation! If you like big red stars, how about Betelgeuse? Or do you prefer something in the Big Dipper? This is a great gift idea for loved ones! Prices vary depending on the brightness and popularity of the star, ranging from $25 to $2500. Donations are tax-deductible, and all proceeds go to the upgrade of the Observatory. To show our appreciation, donors will receive a thank you letter with a brief description of their adopted star,, and a map of the constellation in which it is found. For more information, please call 613-545-2711 or 613-545-2717 or visit our Web page at *http://www.astro.queensu.ca/observatory*

How To Burn Film (an odyssey in astrophotography)
by Laura Gagne

Like many people who come to meeting after meeting and watch unbelievable slide presentations by fellow amateurs, I thought I just had to try to take a few shots of my own. It happens to most of us sooner or later. I suppose I just felt like I was missing out on something. Well, my friend and I, both inexperienced but with plenty of enthusiasm, set out on a journey into the world of astrophotography. Our first attempt was rather primitive. We stuck his camera on top of my telescope and shot pictures of Hyakutake while hand-guiding the scope. They worked out great and we thought there was really not much to this after all. Well, we were hooked. He bought all kinds of photography toys and we started racking up time at the shutter cable. When the pictures came back we would compare them and I began to see where the talent behind those first shots really was. He takes glorious magazine-quality pictures and me, well, I take the rest. I have inexplicable streaky things crossing some pictures, miles of slides of nothing, shots of clouds, car lights, the interior of the car (from when I decided to check if the shutter had closed when my camera froze), and all sorts of neat stuff. I have jammed film in the camera, ripped it off the spool, had the camera freeze open giving me the longest exposure ever taken by an amateur, and kicked the tripod or tripped over the wires to my dewzapper. Right now I have a roll of P1600 in the camera (I only burn the best) with what I hope are images of Hale-Bopp. I asked my friend to help me this time, so I should get something. His shots are breathtaking, but I'd settle for recognizable right now. I could always borrow his slides to make copies and tell people I was with him when he took them. I guess that's the next best thing. I won't give up, I'm not that clever. I might take a break though, and start working on my Messier List. That's what I love about Astronomy; there's always something new to try! So, if you want advice on how to take great pictures, you'd better ask my friend. He's far better at it than I.

Clear skies, and happy snapping,

Hale-Bopp Observations
by Hein van Asperen

I started looking for Hale-Bopp on June 25, 1996. I had a list of daily positions of the comet, thanks to a program suggested to me by Leo Enright. The program (under the name comlst.bas) was based on four articles in Sky&Tel. After combining the programs and checking with Leo to make sure that my results were the same as his, I modified the program in such a way that the print-out gave a daily listing of the RA and DEC of the comet. The required parameters I received from the Internet and they originated from Don Yeomans. On my first try I was unsuccessful. On July 126, four observations later, I found Hale-Bopp as a very fuzzy spot with the 8" telescope. From August to October I made six observations of the comet. The comet remained fuzzy with a brighter spot in the centre. Sometimes I could vaguely see a short tail. Without the comlst.bas information I do not think I would have seen the comet at all.

All this changed in mid January. The comet was now visible in the morning sky as a fuzzy spot when observed with binoculars. There was a bright spot in the centre of the fuzziness but it was on January 26 that I could see some indication of a tail. In January I observed the comet nine times. In February the tail became prominent with a bluish colour. On some morning these were bright stars (mag 3 or better) in the area of the comet and I could follow the path of the comet with the maps in Uranometria 2000. I observed the comet seven times in February and all in the early morning.

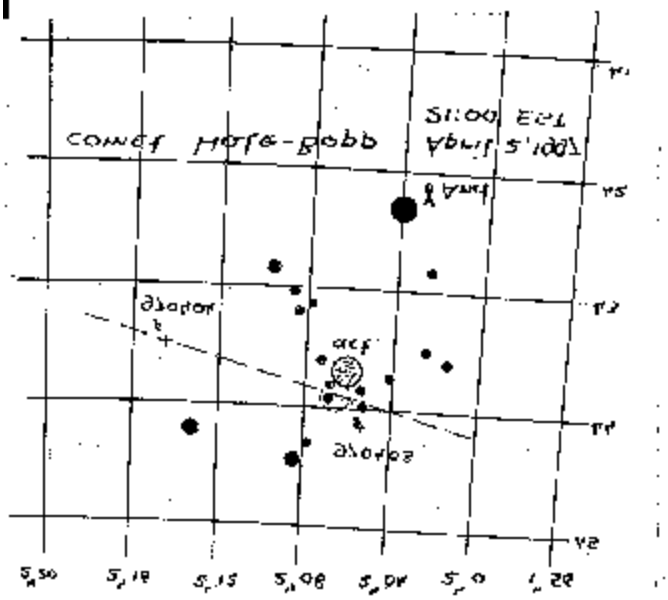
In mid March I started to observe Hale-Bopp in the evening sky and occasionally in the early morning. The tail became simply beautiful. On some evenings there were enough stars in the neighbourhood to make an estimate of the length of the tail. On March 18 the moon interfered but I could still follow the tail ti a star group and with the RA and DEC of that group I calculated that the length of the tail was approx 3.3 degrees. With the Earth-Comet distance for that day of 1.3175 AU I arrived at a tail length of 0.0758 AU or 11.35 million km.

With the 8" telescope the viewing of the comet was disappointing: a large fuzzy spot with a bright core but no details. Binoculars are the tools to observe. In March I observed the comet 16 times (4 times in the morning). The tail became longer and on March 27th I could see 5.6 degrees of tail.

On April 2nd I captured the comet on film. I used my barndoor platform with a 200 mm lens (F4) and Kodak 1000 film. I used quite a range of exposure times and the 8 minute exposure showed two tails, a blue gas tail and a brownish dust tail. With all the background stars, down to Mag 11 (my estimate), I could place the comet accurately on Map 62 in Uranometria 2000. It showed that the program comlst.bas with the parameters of Don Yeomans is amazingly accurate; see the partial copy of the starmap (the broken circle is the calculated position and the striped circle is the actual position).

Comet Watch

Comets Currently Visible from
http://encke.jpl.nasa.gov/whats_visible.html
Last Updated: 1997 February 19



Long-Period Comets C/1995 O1 (Hale-Bopp), C/1997 D1 (Mueller)
Short-Period Comets 46P/Wirtanen, 81P/Wild 2, 118P/Shoemaker-Levy 4, 121P/Shoemaker-Holt 2

C/1995 O1 (Hale-Bopp)
This super-star comet is visible in the evening for Northern Hemisphere observers. For High latitude (>~45 deg N) observers, the comet will become circumpolar (visible all night). It is currently m1-0.5 and near its peak brightness. Details on this comet are provided for the non-astronomer. This page also includes some information of interest to astronomers.

C/1997 D1 (Mueller)
This comet is well-placed for Northern hemisphere observers at ~+50 degrees. The comet will brighten very slowly over the next couple of months. The comet is currently about magnitude 13.5.

46P/Wirtanen
This comet is low in the evening sky. The comet is currently about 9.6 magnitude, which should be close to its peak brightness. (Perihelion is on March 14, 1997.) It will slowly drift northward into May reaching +30 degrees in mid-May.

81P/Wild 2
This comet is well-placed for observation most of the night, with Northern Hemisphere observers somewhat favoured. The comet is currently about magnitude ~9.5 The comet should remain this peak brightness and well-placed into May. Perihelion is on May 5, 1997.

118P/Shoemaker-Levy 4
This comet is well-placed for observation in the middle of the night. It has faded from its peak brightness of 12th magnitude and is now ~13.5. It should remain visible into April 1997 as it moves slowly northward.

121P/Shoemaker-Holt 2
This comet is well-placed for observation. The comet is currently near its peak brightness of ~14 magnitude.

Space Calendar

The Space Calendar covers space-related for the coming months. This Calendar is compiled and maintained by Ron Baalke. Please send any updates or corrections to ***baalke@kelvin.jpl.nasa.gov***
You can find this on the web at:
http://newproducts.jpl.nasa.gov/ calendar

May 1997
May 06 - Comet Hale-Bopp Crosses the Ecliptic Plane
May 06 - Comet Wild 2 Perihelion (1.57 AU)
May 07 - Galileo, 4th Ganymede Flyby (Orbit 8)
May 07 - Mission to Planet Mars Lecture, Washington DC
May 09 - Asteroid 42 Isis at Opposition (10.4 Magnitude)
May 11 - Possible Mercury Occultation of SAO 110219 (9.3 Magnitude Star)
May 11-14 - Spacebound '97, Montreal, Canada
May 21 - Asteroid 2554 Skiff Occults Jupiter
May 22 - Mercury At Its Greatest Western Elongation (25 Degrees)
May 22-26 - 1997 International Space Development Conference, Orlando, Florida
May 23 - Comet Encke Perihelion (0.331 AU)
May 24-30 - International Symposium on Geomatics in the Era of RADARSAT, Ottawa, Canada
May 25 - Pluto at Opposition
May 28 - Comet Hartley 1 Perihelion (1.819 AU)
May 30 - Comet C/1996 R3 Perihelion (1.770 AU)

June 1997
Jun 01 - Moon Occults Saturn
Jun 13 - Moon Occults Mars
Jun 14-18 - Annual Meeting of the Canadian Astronomical Society, Edmonton, Canada
Jun 15 - Comet Hale-Bopp is 3.5 degrees from Comet Encke
Jun 15 - Comet Mrkos, Closest Approach to Earth (1.7968 AU)
Jun 15 - Venus at Perihelion
Jun 18 - Jupiter Occults PPM 239210 (10.0 Magnitude Star)
Jun 19 - Asteroid 1992 LR Near-Earth Flyby (0.2426 AU)
Jun 19 - Comet 1997 A1 Perihelion (3.159 AU)
Jun 21 - Summer Solstice, 08:20 UT
Jun 27 - NEAR, Asteroid Mathilde Flyby
Jun 28 - Moon Occults Saturn

July 1997
Jul 04 - Mars Pathfinder Lands on Mars
Jul 04 - Comet Encke, Near-Earth Flyby (0.1901 AU)
Jul 04 - Earth at Aphelion (1.017 AU from Sun)
Jul 06 - Asteroid 3671 Dionysus Near-Earth Flyby (0.1144 AU)
Jul 08 - Asteroid 1988 XB Near-Earth Flyby (0.1080 AU)
Jul 16 - Possible Mars Occultation of SAO 138979 (8.5 Magnitude Star)

16th International Space Developement Conference, Omni Rosen Hotel, Orlando, Florida. May 22-26, 1997
For more information check *http://www.nss.org/*

Buy, Sell & Trade

David Levy is hosting an astronomy cruise on February 21, 1998 and would like to extend an invitation for all of his friends and colleagues to join him. David will be doing special lectures and presentations on the cruise. Sail from Saun Juan and view the total Solar Eclipse from Aruba on February 26th and return to San Juan on February 28th. For more information, call Shelley at Tanque Verde Travel, 1-800-666-4081 or 1-520-886-4081. Tanque Verde Travel, 7000 East Tanque Verde Road, Tucson Arizona 85715 USA

May 5, 1997 RELEASE: 97-89
SPACECRAFT WATCH FOR COMET HALE-BOPP TAIL DISRUPTION

A fleet of spacecraft for the International Solar Terrestrial Physics (ISTP) program is watching for a break in Comet Hale-Bopp's plasma ion tail.

"Preliminary estimates indicate that it may happen in the next few days," said Dr. Mario Acuna, lead scientist for ISTP at NASA's Goddard Space Flight Center (GSFC), Greenbelt, MD. Goddard is the focal point for many of the ISTP investigations.

Amateur astronomers around the world were put on watch last week when Dr. Bill Farrell, co-investigator for NASA's Wind spacecraft at GSFC, placed a notice on an Internet E-mail list, after scientists studying data from ISTP spacecraft estimated that Comet Hale-Bopp's ion tail likely would be disrupted when it enters a region around the Sun known as the "current sheet." Observations from amateur astronomers monitoring changes in the comet's tails will provide near-real-time data to scientists to complement observations from spacecraft.

Scientists explain the disruption as a complicated interaction between the comet and the Sun's influence and magnetic fields. As a comet comes closer to the Sun, ices from the nucleus (a porous structure of dust and ice composed of frozen gases) are continually vaporized, dislodging the dust, which is formed by the comet's weak gravity into a cloud, called a coma, surrounding the comet. While pressure from the visible sunlight "pushes" the coma dust into a diffuse dust tail, the ultraviolet portion of the sunlight gives the coma an electrical charge, or ionizes it, turning it into a plasma of electrically charged particles of ions and electrons.

The solar wind (also a plasma), flowing from the Sun at speeds from 240-450 miles per second and carrying an embedded magnetic field, smashes into the coma gas, causing additional ionization. The magnetic field in the solar wind picks up comet ions and accelerates them into a long, blue plasma tail. Since this tail is stretched very long, it is much fainter than the dust tail and consists mostly of long-lived (stable) ionized carbon monoxide. The magnetic field is draped around the comet coma and controls the formation of the plasma tail. If the magnetic field is disrupted, the plasma tail may be disconnected.

Hale-Bopp's orbit is tilted relative to the Sun's equator with the comet moving from the Sun's northern hemisphere to its southern hemisphere, crossing the Sun's equatorial plane. This plane is the location of the "current sheet," a place where the Sun's magnetic field lines change direction. As Hale-Bopp passes through this plane, its ion tail may disconnect because of the change in direction of the magnetic field.

"Monitoring this comet tail disruption is more than anticipating an intriguing astronomical phenomenon," said Dr. Farrell. "The stronger solar events can have a tremendous impact on Earth. The plasma ejected by these events smashes into the Earth's magnetic field and compresses it. This generates a magnetic storm which can disrupt power grids and radio communications. Additionally, the effects can damage microcircuits in satellites. With ISTP, if we can monitor disruption events for comets, we can do the same for Earth, providing a warning when they occur," he said.