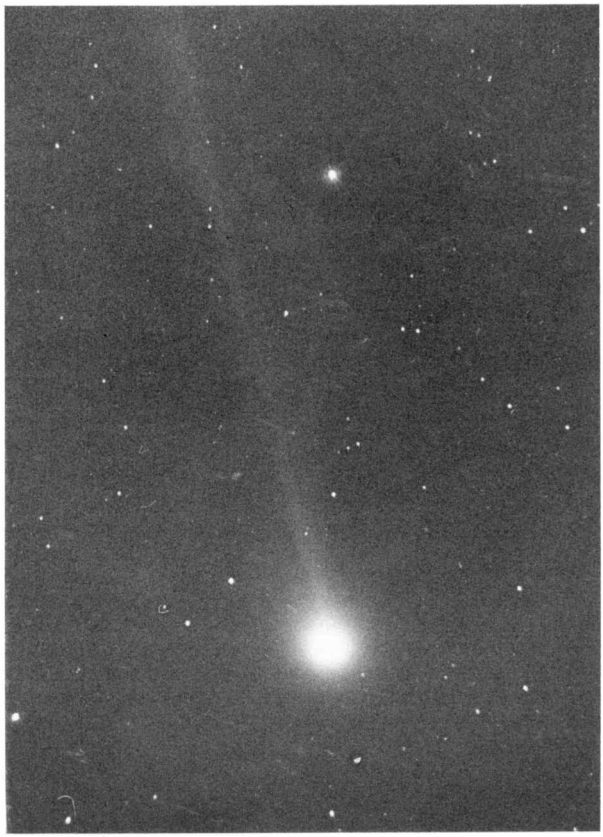
# NATIONAL NEWSLETTER

## December, 1982

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Vol. 76, No. 6



This photograph of Comet Austin was taken on Tri-X film by Jack Newton of the Victoria Centre, with his 40cm f/5 reflector. The 10 minute exposure shows the comet as it appeared on 21 August. Jack notes that later photos showed two tails. Good show Jack!

(Let's see some competition for Jack at next May's General Assembly at Quebec! Observers should refer to the Display Competitions Rules in the October 1982 issue of the *National Newsletter*.)

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## Join Us At The G.A.

You are invited to attend the 1983 General Assembly of the Royal Astronomical Society of Canada, which will be hosted by the Quebec Centre. This is a special event, as we shall have a joint meeting with the American Association of Variable Star Observers and L'Association des Groupes d'Astronomes Amateurs. Plan now to attend! Details and information request forms will appear in the next issue of your *National Newsletter*.

**Victoria Day Weekend**
**20–23 May 1983**

# High Contrast Solar H-alpha Photography for Amateur Astronomers

**by John Hicks**
**Toronto Centre**

Most telescopes, whether refractor or reflector, can be easily coupled to a hydrogen alpha solar filter. With such a device, the amateur astronomer can view and photograph the surface of the sun, a fascinating study that opens up a whole new realm of astronomy. In the past, solar studies at the amateur level usually concentrated upon white light filters and sunspot activity while only the professional community could afford the luxury of a hydrogen alpha type filter. Now, with very adaptable Schmidt Cassegrain reflectors, folded refractors, and pre-engineered coupling accessories, the use of H-alpha filters among amateurs is steadily increasing.

Until recently however, photography of the delicate solar *disc* detail was beyond the capability of most available films. The wispy, faint *prominences* found on the sun's limb area pose no problems for most colour transparency films of even modest speed because the features are silhouetted against the blackness of deep space which alone creates a high degree of contrast. The solar disc features (filaments, flares, spicules, and flocculi) traditionally escape the spectral grasp of colour films available. Although it would appear that this is due to the failure of colour film to respond well in the required H-alpha wavelength of 6563 Angstroms (Å), colour film has three pigments and the red pigment component peaks at 6600 Å – well within the H-alpha region. Nevertheless, a series of test trials on the available Ektachrome colour transparency films from ASA 64 to ASA 400 proved their general inability to yield acceptable imagery of solar disc features.

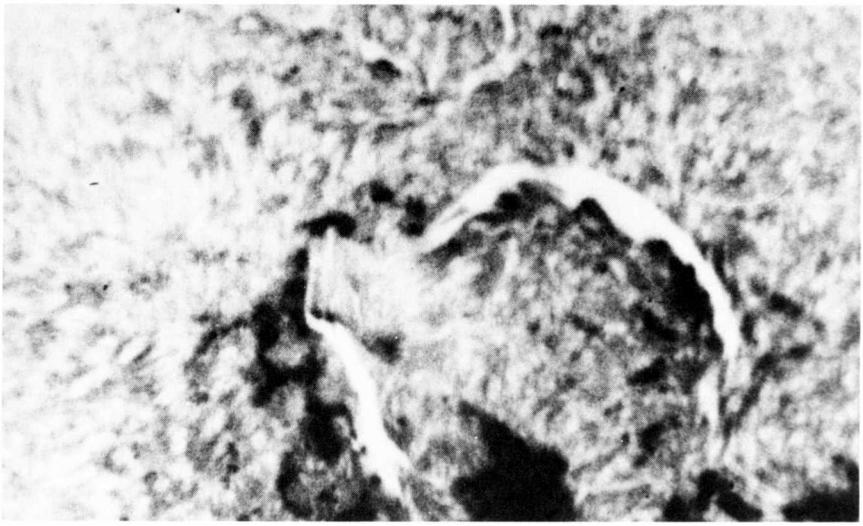
Turning to black and white films, the sole candidate among those tested seemed to be Kodak Technical Pan 2415 with its fine grain and extended red sensitivity. In fact, its spectral sensitivity doesn't begin to really fall off until 690 nm. In addition, the film has a range of ASA possibilities and can be push-processed while retaining its fine grain and high level of contrast. It follows that photographs of the solar surface in hydrogen light are usually done in black and white for the benefit of higher contrast and detail. In this form they are called "filtergrams."

*Required Equipment – H-alpha Filters*

In order to observe and photograph both prominence and solar disc features a filter having a half-bandwidth of 1.0 Å or less is required. Filters with half-band widths in the region of 0.7 Å provide good disc contrast, and bright prominences. Narrower filters (less than 0.7 Å) produce high resolution of active regions, but their price increases accordingly. The popular 0.8 Å ATM model filter by Daystar is a good all around choice for the amateur and is the basis for this article.

*Telescope and Optical Arrangements*

As a prerequisite to using most H-alpha filters the majority of telescopes must be stopped down to a focal ratio of f/32. This is accomplished by the use of an additional energy rejection filter which fits over the objective end of the scope. Most H-alpha filter manufacturers supply this filter to suit your telescope aperture and reduce it effectively to f/32. The energy rejection filter screens out excessive infra-red energy and filter-damaging ultra-violet radiation, while the reduced aperture produces the nearly parallel light beam required for optimum filter performance. A good 35 mm single lens reflex camera is essential with optional focusing screens. The use of a clear aerial screen makes focusing much simpler, and the use of a clip-on prism angle finder and magnifier increases the ease of both study and photography. The best of these finders enlarges the central portion of the viewing screen for critical focusing and compares optically to the performance of a good orthoscopic lens. Since the faint red of the H-alpha line requires dark-adapted vision to fully appreciate, a dark hood over the head and viewfinder will facilitate viewing and focusing (an old umbrella covering cloth will do quite well). The telescope should also be driven by clock drive and roughly polar-aligned. Careful attention should be given to balancing the system once coupled together, as the added weight of the H-alpha filter and accessories will overstress the locking mechanisms on both telescope axes.



This H-alpha filtergram shows a giant facula encircling a large area of sunspot activity. (*Photo by John Hicks*)

*Photographic Techniques*

Initial exposures on Kodak Technical Pan 2415 are calculated from the formula

$$\text{exposure } E = \frac{\text{f/stop}^2}{\text{ASA} \times B}$$

where

B = Brightness value of object (sun)

ASA = 100

f/stop = f/32 (or greater)

The exposure latitude for prominences is fairly wide; being dim objects they are nearly 20 times less bright than the disc portions of the sun. This allows for a fairly wide range of shutter timing. The delicate disc features however, require a precise exposure to pick up subtle contrast defficiencies. It works out that the "B" values needed are different for prominence and disc areas due to their intrinsic characteristics. These are:

B = 150 for solar disc photography

B = 5–10 for prominences

For a typical 8" telescope having the necessary f/32 focal ratio and employing Tech Pan 2415 film

prominence = 2 seconds

disc detail = $^1/_{15}$ second

The "slowness" of these shutter speeds (particularly the 2 second setting) requires some sort of an external-to-camera shutter to avoid vibration. The "black card" technique should be employed for

exposures equal to or slower than ¼ second as the wrist or hand simply isn't fast enough for faster shutter action. Use an air bulb release cable to soften mechanical vibration at higher speeds (such as $^{1}/_{15}$ sec) or employ your camera's self timer shutter release if it has one. Normal flexible cable release models produce sufficient transfer of momentum to jar the camera and film. If a 2× teleconverter lens is added between the filter and camera, the f/ratio will double. The limit seems to be at f/64, which conveniently is twice the f/ratio of the system in our example. At higher f/ratios it is almost impossible to focus the very low-contrast image, and resolution declines. At the f/64 teleconverter focus exposures with Tech Pan 2415 are as follows.

prominence = 4 seconds

disc detail = ¼ second

These exposures must be made with the black card method. With practice, the ¼-second exposure can be successfully estimated. Through experimentation you will find that very slight changes in exposure time will change the contrast of the sun's disc considerably. Hence, bracket exposures even within the ½ to ¼ second interval. You will be amazed at the narrow latitude permitted in solar disc photography. Process the film quickly after exposure and keep it in a cool place in the interim.

*Processing for High Contrast*

In order to produce good solar disc imagery of the fine chromospheric network, the film must be treated to yield greater than normal contrast. This is achieved by small tank processing the film (reel type cannister) in Kodak developer D19 at 20°C for 4½ minutes. Agitate tank every 30 sec for 5 sec to achieve uniform development. After stopping and fixing, use hypo eliminator, wash for 5 minutes and immerse in Photo-flo solution. Finally, dip in a small container of distilled water and hang to drip dry.

When dry, examine the film strip with an optical loupe looking for the darkest frames which produce the most detail. Pick those that show no blur. Cut the frames out of the strip and mount them in standard cardboard slide mounts making sure that you note the frame number of each when you mount them (this is essential if you want to write on the details of exposure, time, ASA etc.). Copy these negatives 1 to 1 or slightly enlarged with a slide copier using Tech Pan 2415 taking film in the camera attached. I find the Soligor slide ZOOM copier allows magnification and yields very good crisp positives. The film is again processed in the same manner and the best "positives" carefully selected according to contrast and focus.

*Converting to Colour*

For aesthetic purposes, the resulting positive can be effectively dyed red to match the H-alpha spectrum achieved with Ektachrome film (which of course cannot register the detail that Tech Pan 2415 will capture). The method is as follows.

Place the individual film chips (cut frames) in a glass of tepid distilled water. Let them soak until soft – about 5 minutes. Fill a small beaker with enough Edwal Red Retouching Dye (or similar) to cover a film chip when placed into it. *Carefully* lift out a chip with tweezers *by the frame edge*, flick the excess water off, and immerse completely in the concentrated dye. Let the chip absorb dye for a period of a minute or so, remove from the dye, and immerse in a second glass of distilled water, and wash by agitating the chip with the tweezers. With practice you will achieve an exact level of colour to match the Ektachrome red. Remember that the dye travels into the film by diffusion, and out of the film into the distilled water by diffusion, so don't let it sit too long in the wash water or the dye will leach out again. Pat the chips dry very carefully, emulsion side against soft paper towelling. When dry, mount in slide mounts again making sure to note the frame number before sealing the mount. Label all your slides with the pertinent information.

The negative-to-positive process will produce a negative for your file which can be printed also, and offers a positive transparency for projection. This method achieves the highest possible contrast, and the film's extended red sensitivity picks up features far too subtle for colour films. The solar photographer can ask many searching questions as his technique improves.

# Report on Two Graze Expeditions

**by Brian Burke**
**Ottawa Centre**

*Graze One*: *At Least It Was Clear*

The first graze expedition of the year was made on March 28th. Seven of us met in the National Research Council parking lot at 18:45 EST and then left for the graze site. The graze was to occur at 20:22 EST at a site about 35 km north of Ottawa. We did not have any trouble finding the graze site but from then on everything went down hill.

Since the magnitude of the star was + 8.1 and the star was being grazed on the bright north limb of the moon, the graze was classified as marginal. One favourable point was that the moon was only 16% sunlit.

There were four stations established, covering a distance of about 3 km. Brian Stokoe and I set up just off the road about 100 metres south of the graze line. All other stations were south of us. The major problem was that the star was just too dim to see near the bright limb. We thought it would be a great idea to guide the 3.5-inch Questar manually and use its power supply to drive the tape recorder. We feared that the batteries in the recorder would not last long in the cool temperature. However, I discovered to my surprise that the power supply to drive a small Questar is simply not designed to drive a tape recorder at the proper speed. Thus the playback speed is about 2.5 times the recorded speed, and our voices are reduced to high-speed squeaks.

Another station had difficulty in seeing the star in the moon's glare. That station observed a total occultation and only observed the reappearance after the star was well clear of the limb. A third station lost the star completely in the glare, and the fourth station lost the moon when their Astroscan was accidentally moved.

Meanwhile, back at our station, Brian and I were glad that some fiercely-barking dogs were down the road from us until we turned around and saw a dog sitting a few feet behind us. Finally, the dog got bored and walked away.

It appeared that the time of graze given in the predictions was way off when Brian finally observed a total occultation many minutes after the predicted time.

We packed it in and headed down the road to find out what the other stations observed. After briefly discussing the total occultation that John and Robin Molson had observed, Brian and I concluded that graze predictions will appear to be wrong if you observe the wrong star! Problems for Robin and John continued when their car battery died, but fortunately they had a backup one which was being used to drive their equipment.

So, although everything seemed to go wrong, at least the sky was clear.

*Graze Two: Multiple Events Observed!*

Although the previous month's graze had a few problems, nine of us met in the National Research Council parking lot at 20:45 EDT on April 30th for another graze expedition. This graze was classified as favourable, with a 7.2-magnitude star grazing on the dark north limb and the moon 56% sunlit. The graze site was located 4km south of Rockland, Ontario.

After about a 30-minute drive, we arrived at the graze site where a few natives of Rockland, headed by Mrs. Bea MacTavish, were waiting for us. Mrs. MacTavish is a member of the Ottawa Centre who lives in Rockland and she had contacted me after reading about the graze in *Astronotes*.

Since we had arrived late, setting up was very rushed. We used the location where a creek ran under the road as our starting point. The graze line, or predicted limit, was within 50 metres of the creek. Brian Stokoe was stationed 500 metres east of the creek, Fred Lossing and John Horwood were at the creek, Rob Dick and Louis Krushnisky were 500 metres west of the creek, Rolf Meier and Rob McCallum were 1000 metres west, and Jim Zillinsky and I were 1500 metres west.

Brian Stokoe, Fred Lossing, and John Horwood did not observe any events, but the other three stations observed many events. The observations were summarized and all times were corrected for reaction time. The time of central graze was predicted to be at 22:20:14 EDT or 02:20:14 UT on May 1st. From the observations it appeared that the graze line had shifted north by at least 0.5 seconds from the predicted line. It should be mentioned that the sky conditions were not perfect, but rather there were

some high clouds and the cloud cover increased later in the night. The "events" that Jim "observed" long after the time of central graze may have been caused by the increasing cloud cover.

Therefore, after many attempts, we finally had a graze in which more than one station observed events. I hope for future grazes we can get more observers and thus more stations.

Reprinted from *Astronotes*

# A Visit to Kitt Peak's Solar Telescopes

**by David H. Levy**
**Kingston Centre**

*Some of you will be visiting Tucson in the future, and of course your visit will include one of the most unusual and important telescopes in the world – the large McMath solar telescope at Kitt Peak National Observatory in Arizona. Whether your visit is real or imaginary, let these words be your guide.*

You are inside an instrument whose principle responsibility is to examine the behavior of the one object in space that allows life to continue on Earth. The object is the sun, and this building in which you stand is the world's largest solar telescope.

Our sun is a huge gaseous ball that converts 4 million tons of hydrogen into energy every second in a process known as nuclear fusion. (This is a far more efficient process than the fission process that our reactors use.) As long as this energy is released at a proper and reasonably constant rate, our earth should be able to sustain life.

One function of the McMath Solar Telescope is to monitor the temperature of the sun, and it is a tribute to the excellence of the instrument that astronomers recently detected a small drop in the sun's temperature. This small change was detected primarily because with the telescope, astronomers have been able to watch the sun with more consistency and more accuracy than before.

Opened in 1962, the telescope is named for the late Robert R. McMath, telescope designer, builder and former director of the McMath-Hulbert Observatory of the University of Michigan. Each clear morning, the 2.03 m diameter heliostat" far above you turns towards the east until the rays of the morning sun reflect from it to strike the primary mirror far down inside the telescope. This piece of special ceramic glass 1.52 m in diameter, is the telescope's heart, for it is from it that the image of the sun is formed. The way this mirror has been shaped or polished, the sun's image reaches a focus 82.5 m away from it. Compare that with your eye, which focuses images on a retina that is less than 2 cm away from its image-forming lens! And most of the other telescopes at KPNO have "focal lengths" that are a small fraction of this one.

The advantage of having such a long focal length is that once the sun's image finally reaches a focus, its size is 73 cm in diameter. This means that there is enough focused sunlight to study properly with the complex heavy instruments that sit on the observing floors near where you are standing. Using flat mirrors that simply bend the sun's light without magnifying it again, the light path can be bent three, five or practically an unlimited number of times until it reaches the instrument that the astronomer wants to use. The only restriction is that all this bending has to be done in 82.5 m.

This telescope and building – they are one and the same – is 150 m long. The tunnel from heliostat to primary mirror is wide as well as long; so wide, in fact that astronomers found plenty of room to include two smaller telescopes alongside the big one. It is possible that at this very moment the telescopes are looking at three parts of the sky at once. The main telescope, for example, may be studying the sun, while one of the auxiliary telescopes may be examining a star or planet in the infra-red — an activity that can be done by daylight. And at night, all three telescopes can still be used to study the planets and certain stars. This is a 24-hour research complex.

Like everything else in this telescope, the inclined nature of the tunnel is precise. If you were to sight along an outside edge you would be looking at the north celestial pole. And as you can plainly see from figure 1, only two-fifths of the telescope is above ground. Why not have all the building below ground and save construction costs on the vertical support tower? Because, with the heliostat 30 m above the small, but bothersome, ground currents, the solar image is that much steadier.

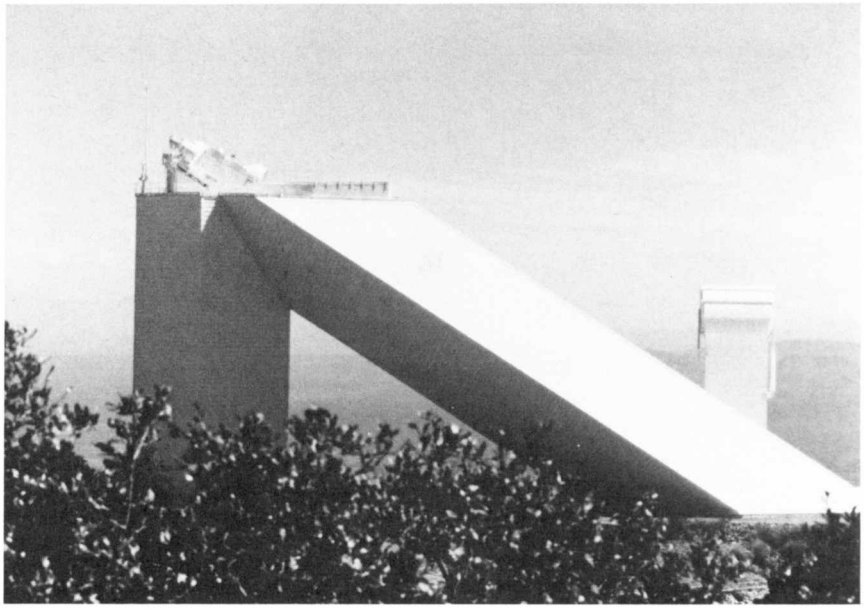


Fig. 1. Pointing proudly toward the north celestial pole, the McMath Solar Telescope graces the summit of Kin Peak. Vacuum Telescope in background . (*Photo by D. Levy*)

The telescope has another means to steady the image. To keep air from circulating within the long tunnel, a series of pipes carries cold water throughout the telescope. The warm air stays outside; the air inside is a bit cooler and stays put.

Just outside and to the east of the great McMath telescope, is a second telescope mounted in a tall vertical tower (see Fig. 2). This instrument is not open to the public. Its main difference is in the way the solar image is kept steady. In this "vacuum" telescope, cold water flow is not used to keep the air steady – because there is no air! After the sun's image is reflected by a two-mirror coelostat, it travels through a vacuum chamber until it reaches a focus in an observing room at the bottom of the tower.

The Vacuum Telescope is the "solar workhouse" of Kitt Peak, the telescope that handles the daily checks on solar activity. Each day the telescope produces a map showing areas of magnetic and helium activity of the sun. This map is circulated to astronomers all over the world and forms a useful index of solar activity and a basis for other research that the solar scientist may want to complete. This is an efficient way of directing solar research. By leaving a single telescope to handle the daily magnetic, velocity field and spectrum maps, work does not have to be duplicated and the national observatory's telescope is actually serving an international purpose.

If the weather is clear, chances are you can see a live televised image of the sun in a monitor beside the telescope. This image is very different from what you may have seen displayed in the Visitor Center. That image was a "white light" image of the sun seen through an ordinary small telescope, showing sunspots and possibly a few bright faculae. The televised image you may see is from a small telescope not far from here that looks at the sun in hydrogen light. Since the sun is composed mainly of hydrogen, looking at it in hydrogen light is, so to speak, examining our star on its own terms. Instead of a white image with a few spots, we now see the churning gases of a star that is over one hundred times the diameter of the earth.

How relevant is this work? Are we using these great telescopes to find, for example, more effective

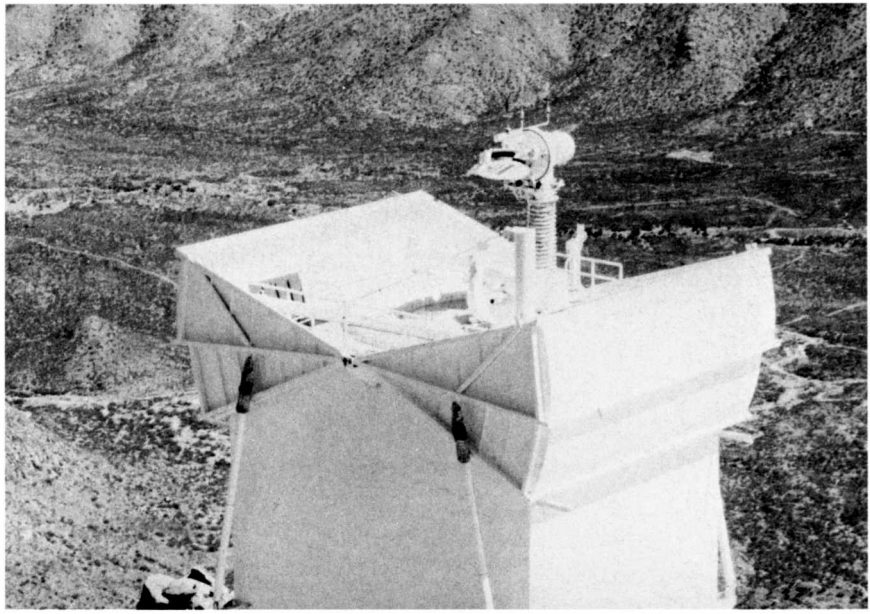


Fig. 2. The top of the Vacuum Telescope. (*Photo by D. Levy*)

ways of harnessing solar energy? The answer: a proud and unhesitating "no." The research going on in the rooms around you is so important that it transcends the concept of relevance. Before we can even consider practical uses of the sun's energy, we must find answers to more basic questions. For how long has the sun been shining at this level of brightness? For how long is it likely to continue? Why does the sun's visible activity wax and wane every eleven years on the average? Do other stars in the sun's spectral class necessarily behave like the sun? When is the sun's slow drop in temperature likely to reverse? These telescopes can help us find the answers to such questions. And with these answers, we will have a better idea of the tiny corner of space that we call home.

## Lapel Pins

Advertise your membership in The Royal Astronomical Society of Canada! The National Office now has a new supply of lapel pins in stock. The enamelled solid sterling silver pins cost $10.00 each (postage and handling included). Orders should be sent directly to the National Office, RASC, 124 Merton Street, Toronto, Ontario M4S 2Z2.

## Money Make$ the World Go 'Round ...

And the Society too! Annual membership fees for 1983 were due on 1 October 1982. The R.A.S.C.'s membership fees are $20.00 for Regular Membership and $12.50 for Youth Membership (under 18 years of age). Some Centres may add surcharges to these fees. If affiliated with a Centre,

please check with your Treasurer. Life Memberships are available for $300.00 payable to the Society and mailed to the National Office at 124 Merton Street, Toronto, Ontario M4S 2Z2. Since all publications (the *Journal*, the *National Newsletter*, and the *Observer's Handbook*) are distributed on a calendar year basis, renewals must be paid before 31 December 1982 to remain on the mailing list. Unattached members should direct their fees to the National Office by this date.

## Error!

In Steven Moths's article "Astronomy Marches Onwards" (*National Newsletter*, August 1982), *The Observatory* Magazine is referred to as a "booklet published by the Royal Greenwich Observatory". It is in fact a journal established over 100 years ago, and is independent of the Royal Greenwich Observatory. There has, however, for many years been at least one of the four Editors of *The Observatory* working at RGO. We extend our apologies for the error to *The Observatory* and its Editors.

## Centres Arrange Summer Observing Sessions

**by Peter Jedicke**
**Assistant Editor**

HALIFAX: Warm summer weather usually encourages astronomical activities. But as the temperature giveth, the clouds often taketh away. For instance, the Honorary President of the Halifax Centre, Dr. William Holden, hosted the Camping/Observing Weekend (COW) from July 16 to 18, but observing conditions were less than ideal. Nevertheless, those present enjoyed watersports, communal meals and a movie of Dr. Holden's 1937 expedition to British Guyana.

TORONTO: To celebrate the 6th anniversary of the Centre's Observatory in Schomberg, Ontario, on July 24, some 25 people enjoyed a picnic meal at dusk and then used the Toronto Centre's new 32 cm telescope to observe the moon, planets and deep sky objects, even though skies were hazy.

CALGARY: Some members of the Calgary Centre visited Plateau Mountain on the weekend of July 24, and were treated to excellent weather – fine seeing, comfortable temperatures and little wind. Unfortunately, a second weekend there featured high winds, cold and a violent rainstorm!

WINNIPEG: In Winnipeg, the Centre hosted an open house at Glenlea Observatory on August 28 with almost 30 people present. The weather there prevented observing at first, so slides and movies were shown, but when the sky cleared at 9:30 p.m., Brenda Belkin gave a "tour" of the autumn sky and members of the public viewed the moon, h and Chi Persei, M31, M13 and Albireo.

ST. JOHN'S: The cable television program produced by Tony Quilty and other members of the St. John's Centre has won two local awards, "Best technical production," and "Best informative programme." The Centre was scheduled to start production for a new season of programmes early this fall.

EDMONTON: Big-budget astronomy is not suffering as much in Edmonton as in many other cities in North America, as witnessed by the progress of construction of the marvelous new Space Sciences Centre in Coronation Park. The Edmonton Centre will be promoting a "Donate-A-Star" campaign to help fund the Space Sciences Foundation in this effort.

MONTREAL: "The Joy of Gazing" is an informative booklet produced by the Montreal Centre. Written by well-known Tucson amateur astronomer David Levy (see his article on p L71 of this issue), it is

designed for beginning observers. This project was originally suggested at the Victoria General Assembly, and all Centres are encouraged to write to the Montreal Centre for a few copies for their new members. Individual copies are $3.00.

WESTERN CANADA: Dan Graham, an R.A.S.C. Member from Burnaby, British Columbia, has constructed a miniature Cassegrain telescope mounted as a trophy. The award will be given annually to an amateur astronomer living west of Ontario for an outstanding achievement in observing. However, the trophy itself will remain on display in selected locations. Active western Centre observers are already said to be eyeing the award.

OTTAWA: The Ottawa Centre holds regularly scheduled Observers' Meetings on the first Friday of each month at the National Research Council building on Sussex Drive. Usually the meetings are in Room 3001, but there was a problem with the ceiling earlier this summer. On October 1, David Levy of Tucson, Arizona, gave a talk on "Observing in the Shadow of Kitt Peak," which was well received by about 45 people. In addition, the Centre often schedules lecture meetings, which are held in the auditorium at the N.R.C.

VANCOUVER: John Dobson and other representatives of the famed San Francisco Sidewalk Astronomers were at the H. R. MacMillan Planetarium in Vancouver on August 3 and 4. Constant rain prevented the use of their large travelling telescopes. The visitors from south of the border journeyed to Jasper and Banff National Parks, and then to Waterton Lakes park south of Calgary, where the weather finally dried out.

NOTE: This section is a regular feature of the *National Newsletter*. Address your comments to the NNL Editor. Centres are encouraged to include reports of activities in their newsletters and to be sure one copy is being sent regularly to the writer, in care of R.A.S.C. London Centre, P.O. Box 842, Station B, London, Ontario, Canada, N6A 4Z3. Please write or call with details of Centre activities! News received before December 1 will be considered for the February issue. Late items may be telephoned evenings to (519) 433-2992, after the long-distance rates go down.

## Some New Publications

The Astronomical Society of the Pacific offers a wide selection of slides, posters, books and other things astronomical in its latest edition of the A. S P. Astronomy Catalogue. Proceeds from the sale of these items are used to support the educational activities of our sister organisation. A copy of the catalogue can be obtained by sending a stamped self-addressed envelope to ASP Astronomy Catalogue, 1290 24th Avenue, San Franciso, California 94122, U.S.A.

To mark a quarter-century of space exploration, NASA has recently published *A Meeting with the Universe*. This non-technical account of the history of scientific activity in space is embellished with colour illustrations, and addresses the question of man's future in space. The price is U.S. $14.00 per copy, payable by cheque, money order or VISA or MasterCard, to the Superintendent of Documents. Orders from outside the U.S. are subject to a 25% surcharge for extra handling and postage. Order Stock Number 033-000-00836-8 from The Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402, U.S.A.

Also available from the same address is NASA's publications mini-catalogue "What's New in Space?".

The religion, philosophy and astronomical knowledge of the Mayans are discussed in a new Transaction of the American Philosophical Society (Vol. 71, Pt. 5). The study by G. M. Severn is *The Paris Codex: Decoding an Astronomical Ephemeris* (ISBN 0-87169-715-7). The price is U.S. $10.00 (plus $1.75 foreign postage); the book can be ordered from The American Philosophical Society, 104 South Fifth Street, Philadelphia, PA 19106, U.S.A.

Neophyte observers who are considering purchase of a first telescope will find the Astronomical

Society of the Pacific's new Telescope Guide information packet of great interest. The design of telescope optics and mountings is discussed, and advice given on what types are best for various purposes. Consumer hints on what to ask before buying, and what to do once the telescope is brought home are most useful. Also included are a list of major telescope manufacturers and a reading list. The guide costs $2.00 and is available by writing to the A.S.P., Telescope Guide Dept., 1290 24th Ave., San Francisco, CA 94122.

## Simon Newcomb Award

At the meeting ofthe Council of the R.A.S.C. on May 21, 1978, a proposal from the Halifax Centre, the *Simon Newcomb Award*, was adopted. The award is named after a native of Nova Scotia, an astronomer who was the foremost man of science of his time in America.

Simon Newcomb (1835–1909) was born at Wallace Bridge, N.S. At age 18 he moved to Massachusetts and later to Washington, D.C. where he spent his entire professional life. In 1861 President Lincoln commissioned him as Professor of Mathematics and Astronomy in the United States Navy. For 16 years he carried on astronomical observations at the Navy Observatory. From 1877 to 1897 he was Superintendent of the American Ephemeris and Nautical Almanac Office. Newcomb became the world authority on the orbital dynamics of the Moon and planets. Among the many honors which he received were the Gold Medal of the Royal Astronomical Society (1874), the Copley Medal of the Royal Society of London (1890), President of the American Association for the Advancement of Science, the first President of the Astronomical and Astrophysical Society of America (the present American Astronomical Society), and seventeen honorary degrees from leading universities in the United States and Europe.

**Rules:**

*Topics*

Awards will be given for articles relating to astronomy, astrophysics or space science. Topics should interest average to well-informed amateurs and may be of current or historical interest.

*Presentation*

Articles should be 1000–2500 words, written in proper grammatical form and presented typewritten and double-spaced. Diagrams need not be in finished form but should be complete and ready for drafting. Photographs may also be submitted and if possible original negatives should accompany the submission. References should be included and according to the style used by the *Journal*.

*Eligibility*

Any R.A.S.C. Member in good standing may submit articles. The intent of the Simon Newcomb Award is to recognize literary ability among non-professional members of the Society.

*Submission of Entries*

Articles must be received by the Awards Committee of the R.A.S.C. Between January 1 and March 31. *Members of Centres* must first submit the entries they wish to their Centre Executive with the Executive choosing the entries they wish to represent their Centre. It is the responsibility of the Executive of the Centre to ensure the entries are received by the deadline above. *Unattached Members* will submit their entries directly to: The Awards Committee, Royal Astronomical Society of Canada, 124 Merton St., Toronto, Ont., M4S 2Z2.

*Judging*

Articles will be judged by the Awards Committee. Criteria shall include scientific accuracy, originality, and literary merit. To maintain unbiased judging, the identity of the author(s) should not appear in the body of the Paper.

*Presentation of Award*

The award will be presented at the General Assembly by the Halifax Centre representative to the winner (or a representative of the winner's Centre). The award will remain in the hands of the winner's Centre for display and will be returned to the National Office by April 1 of the following year. If the winner is an unattached member, the award will be displayed at the National Office of the R.A.S.C. A photograph of the Award may be found in the R.A.S.C. *National Newsletter*, L81, Dec. 1978.

## The Revisionist's Corner

In the discovery of pulsars a noble price was awarded to Hewish and chairperson at the Cambridge University ...

Q: Where would you look to see Vega in the late evening sky in July?
A: South of Polaris
Q: What is the reason we give the names we do to the various meteor showers?
A: The various meteor showers are come from a various region in the sky, so we name them by the apparently constellation appears in that region of the sun. To differentiate them from other occurrences in space and also because they don't really harm us as other large meteorite mite do if they fall on earth.
Q: Distinguish clearly between ... Etc.
A: Rotate is the things it turn arounding by itself. Revolve is the things which turning arounding, surrounding something.
Q: Define ...
A: The plane of the ecliptic is the horizontal earthbound that observer can easily seen the sun.

Reprinted from *The David Dunlap Doings*

## History Seminar

**by P. Mozel**
**National Librarian**

As there is a certain interest within the Society regarding the past of Canadian astronomy, perhaps an informal meeting to exchange ideas would be in order. Those who are actively involved could share their experience with those wishing to learn what areas need researching and how to go about doing the necessary work. A number of historical organizations have been approached and expressed interest in participating by reviewing methods of general research.

For this effort to be a success two things are required: those wishing to discuss their work and those wanting to hear about it. There are people in both categories out there, so how about it? Is this idea worth pursuing? If you agree that in principle it is, let me know. If there is enough interest, something can be set up. Participants in a one day meeting would hopefully come from the several centres within driving distance of Toronto. Please contact:

Phil Mozel
1359 White Oaks Blvd
Apt 707
Oakville, Ont. L6H 2R8
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# NATIONAL NEWSLETTER

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