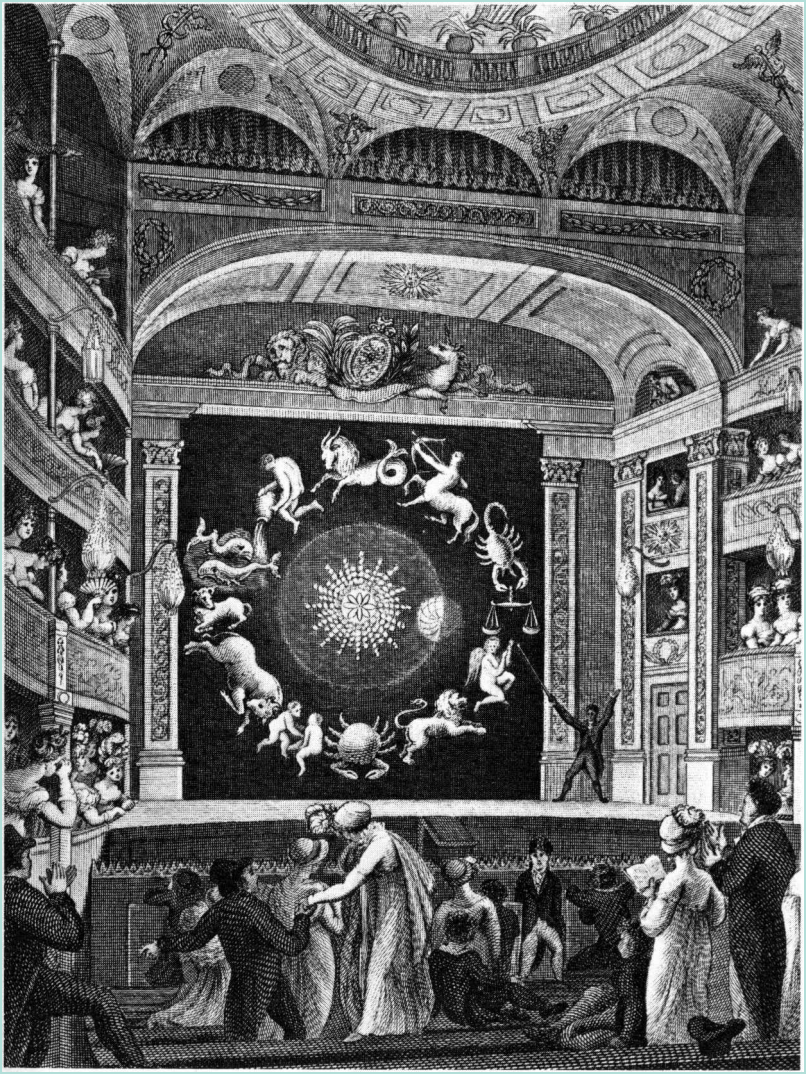
NATIONAL NEWSLETTER



The proscenium of the English Opera House in the Strand, 21 March 1817, with Walker's exhibition of the Eidouranion. (By courtesy of the Victoria and Albert Museum) See Dr. H.C. King's article, *On Planetarium Experiences, Old and New*.

L10

On Planetarium Experiences, Old and New

This month's feature article is by Dr. H.C. King, Curator of the McLaughlin Planetarium and is reprinted with permission from *ROTUNDA*, the magazine of the Royal Ontario Museum, Vol. 7, No. 4, Fall 1974, Pages 2–3.

About 150 years ago, in a popular book on education, Maria Edgeworth described a lecture on astronomy. She referred to the advertisement, similar to a play-bill, to the company, lights, boxes, pit, and great curtain of a playhouse, and to the soft music "from an harmonica, which was concealed behind the scenes". After mentioning the lecturer's discussion of the sun, of the rotating and revolving earth, of the changing aspect of the moon, and of the tides, she made particular reference to the last scene. "It showed the whole solar system, as it is called, with every planet and satellite in their annual rotation; and there they saw bright Venus, and red Mars, and Jupiter with his satellites, and Saturn with his ring; and last, but not least, they saw a comet with its bright tail. The curtain fell, and Frank and Mary were sorry, for they were now much more awake than they had been at first. It was very different with some of the other little children, who had not been awakened by the moon or by the eclipse, or even by the comet, but were now dead asleep, in various attitudes."

The experiences referred to are characteristic of an early 19th-century lecture-demonstration given annually in London, usually during a week in Lent, at a theatre or any assembly hall furnished with a stage and capable of seating a large audience. Similar lectures were also held at provincial centres, again in theatres and large assembly rooms. The main attraction was the *Eidouranion*, a vertical model of the solar system invented by Adam Walker during the 1770s. Some 20 feet in diameter, it occupied the rear of the stage and was "transparent" in the sense that it was illuminated from the rear. Although its construction involved large amounts of wax-impregnated silk or muslin, it was provided with gearing and its planets could be set in motion merely by turning a handle. It was designed to take a variety of attachments and was invariably supplemented by other large "transparencies". Some of the latter had wheel-work for demonstrating astronomical principles, others were representations of the sun, moon, and planets as seen through a large telescope. On occasion a comet would travel across the auditorium, an effect doubtless produced by driving a cleverly contrived model on fixed guide wires.

While assistants operated the apparatus and moved the transparencies, the lecturer read from a script – at least, until he could rely on memory alone. A lecture lasted about two hours, but as Faraday once remarked, the theatre predisposed audiences to expect a long session, and the numerous different effects, unusual nature of the subject, and regular musical intermissions prevented all but the very young from falling asleep. There must have been a wide range in lecturing ability. Some lecturers took advantage of the popular love of the unusual and marvellous with more finesse than others. Some were good entertainers but mediocre imparters of information; others dispensed much information but not in a particularly interesting way. We can be sure that popularization was often achieved by sacrificing accuracy and meaning. Many visitors were diverted rather than informed by what was sometimes a frivolous and showy display. In the literature one particular lecturer is complimented for his "deep enthusiasm" and "amusing manner". At one stage the same lecturer was visibly "overpowered by the grandeur of the subject". This reaction, undoubtedly communicated to the audience, arose when "the approach of night was admirably imitated by the machinery employed, and the spangled appearance of the firmament, with the Milky Way, powdered with stars, had a very striking resemblance to nature".

Some lecturers introduced a strong line in natural theology. Using "splendid and extensive Scenery", R. Franklin of Oxford in 1828 discussed the concept of the plurality of worlds and "the Mosaic account of the Creation – the Flood – the standing still of the Sun – the shadow going back ten degrees on the dial of Ahaz – and the darkness of the Crucifixion". But the majority pioneered in translating the ideas and discoveries of William Herschel into easy, everyday terms. They told of an astronomy more romantic than that studied in universities or conducted at major observatories. People who understood nothing of physics and mathematics listened with fascination to descriptions of possible inhabitants of the sun, volcanoes on the moon, nebulae, double stars, variable

stars, and the probable shape of the Milky Way System. They may not have understood what they saw and heard, but many would have been encouraged to learn more.

Transparent apparatus and paintings held their own in public lectures and exhibitions until well into the second half of the 19th century. After 1826, however, when Thomas Drummond constructed the first "limelight", the magic lantern show began to appear as a popular form of entertainment. Further, Carpenter's new process for making slides lent itself to the portrayal of astronomical diagrams and phenomena. Eventually, most of the basic effects of the large and elaborate Eidouranion could be produced by turning the handle of a mechanical slide mounted in a rear-screen optical projector.

Parallels between the methods and aims of over a century ago are obvious to anyone who has visited the Star Theatre of a modern planetarium. Audiences still love the unusual and marvellous, succumb to the magic of the night sky, and readily respond to attempts to provide information in a clear and interesting way. The speaker's voice, whether "live" or replayed by tape, has to be compelling and never dull, and the information he imparts, accurate and well arranged. Visual effects, now highly sophisticated, are nearly all produced by optical projectors, and are both numerous and varied. In the McLaughlin Planetarium, a Zeiss "universal" planetary machine, not "transparent apparatus", dominates the stage, now reduced to a central dais. By reason of its weight, some two-and-a-half tons, and the need for a large hemispherical projection dome, its mobility is restricted to motions on its own supports. In compensation, astronomical programmes, lectures, presentations, shows – call them what you will – can be given throughout the year and not restricted to one week just before Easter. Some critics, like Sir David Brewster of old, consider that the effects are "for the amusement rather than the instruction of a wondering audience". Others complain that there is not sufficient emphasis on amusement and entertainment. But the need to present astronomy to the public at large still remains, and the more so in view of its growing complexity and rapidly-expanding frontiers. If the planetarium, as the late R.S. McLaughlin once remarked, can give people some idea of the nature and immensity of the universe of stars, it will be eminently worthwhile. On the other hand, we hope that the imagination of anyone who visits the McLaughlin Planetarium will be stirred and not, as in the case of someone at one of Walker's scenic lectures, "overwhelmed" and then "entirely lost and sunk in the abyss of nature."

DR. H.C. KING, *McLaughlin Planetarium*

L12

A Simple Procedure for Anodizing

Aluminum is a material commonly used by amateur telescope makers due to the fact it is light and easily worked. But it has two major disadvantages due to its softness. One, it mars and scuffs easily. When two pieces are in bearing contact or threaded, they tend to mark up and seize. Two, unless aluminum is protected it blackens whatever it touches. Both of these problems can be overcome by anodizing all aluminum pieces.

Anodizing is a process of forming a very hard (Topaz #8 on the MOH scale of hardness) aluminum oxide coating on the surface of a piece of aluminum. This oxide coating is a transformation of the surface by an electro-chemical reaction of the metal surface in an aqueous electrolyte. In other words, the oxide coating is part of the metal and cannot chip or peel, like paint, even if the work piece is bent sharply. As the anodizing process does not add anything to the thickness close tolerances will not be affected.

The process consists of three basic steps :

1 . Preparation and cleaning
2. Anodizing
3. Sealing the coating
(A fourth step can be inserted between 2 and 3, dyeing to specific colour. This has to be done before the oxide coating is sealed).

1. *Preparation and Cleaning*

Care must be taken with the finish on the work piece as anodizing will emphasize blemishes, not conceal them. Pieces must not be riveted or screwed together before anodizing as the electrolyte is extremely corrosive, and cannot be properly rinsed out of very small cracks or pockets. After all machining operations are finished the work pieces have to be degreased thoroughly with a degreasing agent such as trichlorethylene. (If trichlorethylene is unavailable try pure denatured alcohol). A conductor, which must be aluminum, is now attached to the work piece and securely fastened. The connection must be secure enough so that electrolyte can not penetrate between the work and the conductor. The anodic coating is insulating; therefore the electrical connection would be lost if the electrolyte penetrated the connection. If the current stops flowing due to a faulty connection, the electrolyte will start to dissolve the work.

A good conductor is aluminum welding rod, threaded on one end and inserted in a tapped hole. Welding rod is cheap enough to use a new piece every time you anodize. Aluminum wire is good for small articles when not much current will be drawn. The conductor is also used to suspend the work in the electrolyte, so it must be mechanically strong as well as a heavy enough electrical conductor. Depending on the alloy, the current needed is 12–18 amps per square foot of surface area.

After attaching conductor, give one more rinse in trichlorethylene to make sure the work is grease free. Then immerse in a 2 to 20% solution of caustic soda (sodium hydroxide) for 3 minutes at 150°F. A glass or mild steel tank or beaker is generally used. If a dark deposit forms on the surface, due to a high silicon content of the aluminum, it can be removed by a 10 second dip in a strong nitric acid solution followed by a cold water rinse. The work is now ready for anodizing, but if the anodizing bath is not ready, store the work under cold water to prevent contamination.

2. *Anodizing*

A lead tank is constructed large enough to take the biggest work piece, with about 1″ clearance all around. Roofing lead ½″ thick is ideal, soft soldered together. The lead tank should be contained in a larger container so as to form a water jacket. A luxury is a temperature controlled circulating water jacket to keep the electrolyte at 70°F ± 3°.

The electrolyte is pure sulphuric acid (H_2SO_4) diluted with distilled water to a 20% solution by volume. When diluting the acid, add the *acid* to the *water slowly*, while stirring gently, to dissipate the heat generated. When dealing with corrosive chemicals, rubber gloves, apron and face mask should be worn to protect the user.

The work is suspended in the electrolyte completely, care being taken that it does not touch the lead tank. A bar of glass, micarta, or other plastic can be used to suspend the work from, and insulate the connector from the lead tank.

A car battery (12V) in good condition is an ideal power source as it will deliver sufficient amperage for most projects. Connect the lead tank to the negative terminal using a fairly heavy conductor. Then connect the positive terminal to the aluminum conductor connected to the work.

Thirty minutes will yield a coating 0.00047 inches thick and after one hour it is 0.0011 inches thick. Do not anodize for more than two hours as the coating starts to flake. Thirty to forty minutes is normal. Do not cover tank as hydrogen gas is given off. Sufficient ventilation should be provided to prevent gas build-up at the work or in the room.

Rinse very thoroughly in cold water to remove all traces of acid when finished anodizing. Do not touch the surface yet.

3. *Sealing the Coating*

If the work is not to be dyed it must be sealed. The anodized surface is very porous and will absorb many surface contaminants. Sealing vastly increases the resistance to corrosion and staining.

There are three different methods of sealing:

1. The simplest is immersion in boiling water for 30–60 minutes.
2. Aqueous salt solution – eight ounces of potassium dichromate per gallon will give protection in the severest of conditions. Keep just under boiling for 30 minutes.
   For sealing dyed coatings, 0.8 ounces of nickel acetate per gallon of water at 208–212°F. Immerse work for 5 minutes.
3. Oil and wax sealing. Lanolin or linseed oil when absorbed in the oxide increases corrosion and wear resistance. It also increases the insulating properties of the coating.

After any of the sealing processes, a liquid wax coating, well polished, improves and preserves the initial lustre. Do not oil or wax if the work is to be painted.

If the work is to be dyed, the cold water rinse should be very thorough. Black dye is the most common. Nigrosine black is used in a concentration of 1 oz. per gallon of water. A 10 minute dyeing period at 140° to 160°F should give a good black. Seal with nickel acetate.

Precautions:

Hands must be kept off the work piece once it has been cleaned chemically. A greasy fingerprint will show at any stage and the work will not accept anodizing or dying properly. Handle only by the conductor. Use distilled water only for diluting solutions and topping up tanks. If a scummy deposit forms on the inside of the lead tank, it should be removed with emery paper or steel wool after draining the tank.

Of course the acid and caustic solutions necessary for this process must be handled with extreme caution.

Once the initial preparation has been done in setting up the anodizing process maintenance is simple; just keep the solutions clean and at the recommended dilutions. The anodizing process is not difficult, and it provides a very good way to improve the appearance and the operation of a telescope.

Reference: *Finishing Aluminum*, The Aluminum Company of Canada.

JOHN A. FINDLAY
Calgary Centre

Films for Astrophotography

I'm sure that at some time every amateur astronomer has had the urge to attempt photography at the telescope. But what can be accomplished with your equipment? The only answer is to attempt some photography on your own. Almost any book about amateur astronomy devotes several pages to the subject of photography and for this reason I won't discuss the various photographic techniques.

Over the last few years, I've found that the film in your camera has a very important role to play in your success at photography. The reason for this becomes very clear when we look at a few of the basic properties of the film. All film is coated with a light sensitive layer known as the emulsion. The emulsion is made up of small grains of silver halide; the larger these grains are, the more sensitive the film is to light. In astronomical photography we are almost always dealing with dim light so we would naturally want

a film that is very sensitive. However, a problem is encountered with the sensitive film: the larger grains of silver halide make it more difficult to record an image with fine detail. A compromise must obviously be made between recording speed of the film and resolution of detail.

As might be expected, the "compromise" will be different for the variety of subjects that we can photograph. After using insane quantities of film, I have finally settled on what I feel are the best types of film for the subjects. For photographing the entire disc of the moon, Pan-F film (Ilford) seems to give the best resolution of features, as well as a good contrast between the light and dark features. For close up photography of specific regions of the moon, I prefer to use Kodak TRI-X film. This film has rather large grain but this is compensated for by the high sensivity of the film.

The planets, in particular Mars, Jupiter and Saturn, are very hard to photograph, because they are small as well as dim. The only film that has proved satisfactory for the planets is Ilford Pan-F (ASA 50). A good alternate film would be Kodak Panatomic-X film. A film with a higher ASA rating could be used but the grain always seems to wreck the image.

For photography of deep sky objects, I've found that films with a very high ASA rating don't record very many more stars than films with moderate ASA ratings. For this reason, I prefer to use TRI-X or Ilford HP 4. The Kodak series of spectroscopic films, such as 103a–F, have proven to be the best films for deep sky photography.

The only colour films that have been tested are the colour slide type. The film I prefer for lunar and planetary work is Kodachrome-X (ASA 64). For deep sky, GAF 500 ASA colour film seems to be the best.

It should be noted that these are only my impressions of the various types of films available and at best are only guidelines.

TONY PUERZER
Vancouver Centre

A Test of Three Films

When it comes to black and white films, the astrophotographer is primarily concerned with film speed and grain size. I have experimented with three of the faster films in the hope that I might find a better film for astronomical photographs.

For years the usual film to use was Kodak's Tri-X. For my tests I compared that film with Ilford's HP4 and Kodak's 2475 Recording Film. All films were shot and developed on the same evening with freshly made chemicals, etc. Details are available from me if you are interested. The 2475 film was shot at ASA 1600 and 4000, the HP4 was shot at ASA 400 and both were compared to Tri-X shot at ASA 400 and 1600.

At ASA 1600 the Tri-X was superior to the Recording Film in that its slightly smaller grain size gave it a higher resolution. About the only use for these films at this speed would be for star trails and pictures of diffuse nebulae or faint galaxies. For straight star trails where grain is not seen in the final print, I would recommend the 2475 type since it can be processed to give ASA 4000. For shots of nebulae where grain would detract from the quality of the print, it would appear that Tri-X would be the better of the two, although not necessarily the best of the three films I tried. In pushing Tri-X and 2475 from a low ASA rating to a higher one, there was a noticeable increase in grain size. I should mention that very fine grain developers are available which will push Tri-X to ASA 8000 and leave the grain almost unchanged but these are rather expensive for ordinary use.

To test Tri-X at a low speed (ASA 400), I compared it to HP4, which was shot at ASA 400 and pushed to ASA 650. Both films had identical resolution (an important consideration for lunar and planetary photographers) but the HP4 also appeared to have the finer grain even when processed for ASA 650. Thus it would appear that the only advantage that Tri-X has over Ilford's HP4 is that if the need arises, Tri-X can be forced developed to ASA 1600 or higher.

Diluting the developer supposedly causes an increase in the sharpness of the film. A dilution of 1.3 is considered optimum and this was used in a test on HP4. My results show that diluting the developer gave no noticeable increase in the sharpness and so about the only advantage I can see is the economy in diluting the developer.

In summary: Kodak's 2475 would be the best film for astronomical purposes where speed is important but grain is not a consideration. Ilford's HP4 looks like it would make a better film for planetary and lunar shots where fine grain and moderately fast emulsions (ASA 400) are needed. When it comes to ultra-high speed and moderate grain size (i.e. – for galaxy photos), then Tri-X would appear to be a good choice.

DOUG BEATON
Ottawa Centre
Reprinted from Vancouver Centre s *Nova*

Participation of RASC Members in Heritage Canada - Our National Trust

The restoration of the 15-inch refractor of the Dominion Observatory has been accomplished by the National Museum of Science and Technology and will enable a fine old instrument to be seen and used in a new environment by many persons. Even though our interest in astronomy will be furthered by many using this new arrangement, the change unfortunately places a new emphasis on the ultimate use of the pier and dome of the old Dominion Observatory building.

Heritage Canada has recently been created as a non-governmental, charitable organization with a nationwide interest in historical projects. It is a late-comer as a national trust for the preservation of our heritage and wishes to co-operate with others in any suitable undertaking. This can be done through individual or corporate membership. If our society were to become a Participating Organization, a seat would be given under the chairperson of the Board of Governors so that the full resources of both groups could be brought to bear upon a particular problem. Two plans of membership are offered. Plan A requires that 10% of the membership become individual members of Heritage Canada, while Plan B is a corporate membership. For such groups as ours with a secondary interest in astronomical antiquities, Mr. R.A.J. Phillips, Executive Director, Heritage Canada, P.O. Box 1358, Station B, Ottawa, K1P 5R4 has indicated that the quota could be lowered. Membership for RASC members would be at the rate of $3 per individual, reduced from $5, with a special rate of $2 for students and senior citizens. The corporate membership is based upon a 50¢ fee per member up to 100 and 25 cents for all members beyond. Members will receive a quarterly magazine, HERITAGE CANADA and other publications.

It could be that some of our members are already involved in Heritage Canada or similar groups. It would be extremely helpful if such persons, or others wishing to participate by joining Heritage Canada on either of the two plans be identified by writing to A.E. Covington, Chairman of the Historical Committee R.A.S.C., 252 College St., Toronto, Ontario M5T 1R7. Such information will be summarized for use of National Council.

A.E. COVINGTON
Ottawa Centre

News Briefs

A Large Mirror for Vancouver

Ken Hewitt-White of the Vancouver Centre reports in *NOVA*, that Centre's newsletter, that an attempt is being made to produce a telescope mirror from a 15¼-inch blank of Soda glass, which is used for making portholes in ships. "The mirror is proving to be a very troublesome one to polish and figure", reports Mr. Hewitt-White, but he notes optimistically that "the end is in sight." Craig McCaw is now doing most of the work on the project, after initial and smaller contributions by Dave Dodge, Allen Miller, and Ken Hewitt-White.

An Appeal for Observational Assistance

At the 1974 General Assembly in Winnipeg, I gave a paper regarding a star, HD33162, which I believe to be variable, although it is not presently known as a variable star. HD33162 is the star marked at magnitude 6.3 for use in estimating the magnitude of the variable RX Leporis, which may be found on the AAVSO chart 05001 W Orionis. I am trying to construct a light curve for this star and would appreciate observations from experienced variable star observers. If you can, please send observations to me at the address below.

K.E. CHILTON,
93 Currie St.,
Hamilton, Ontario
L8T 3N1

Recent Results of Research in Astronomy

In the December 30, 1974 issue of *TIME* magazine it is reported that Allan Sandage (the world's foremost observational cosmologist) and James Gunn (former classmate of our own Dr. Gary Prideaux) have independently concluded that the Universe is older than previous estimates, and is open (i.e. will continue to expand forever). Sandage's conclusion is based on work described in a series of papers, the latest of which (*ASTROPHYSICAL JOURNAL*, v. 194, P. 223, Dec. 1/74) concludes that Hubble's Constant has the value 55.5 kilometers per second per million parsecs.

Hubble's Constant is simply a measure of the rate at which the Universe is expanding. If one assumes that the rate has remained constant – no acceleration or deceleration – then the age of the Universe, that is to say, the time that has passed since the expansion began, is equated to the reciprocal of Hubble's Constant. Since one million parsecs equal 3.08×10^{19} kilometers, and one year equals 3.15×10^{7} seconds, the age of the Universe is equal to

$$\frac{3.08 \times 10^{19}}{55.5 \times 3.15 \times 10^{7}} = 1.76 \times 10^{10} \text{ years}$$

or approximately 18 billion years. One possible solution to a closed Universe is an oscillating Universe in which the current expansions began infinitely far back in time and will continue for an infinite time into the future. In an *open* Universe, however, we are forced to consider the difficult and, really, unanswerable scientific/religious/philosophical question of "What came before the big-bang?"

DR. DOUG HUBE,
Edmonton Centre

Sunspots and Agriculture

While we have recognized that solar activity does affect the structure of the Earth's upper atmosphere, "respectable" scientists have tended to greet with derision any suggestion that sunspots and associated phenomena have any influence on wheather patterns in the lower atmosphere, crops, animal behavior etc. What have often been lacking in the past are good statistics to back up either side of the argument. A recent article (*NATURE*, v. 252, P. 2, 1974) suggests that the 11-year and 22-year sunspot cycles are strongly correlated with agricultural productivity in various parts of the world. For example, in 1957 and 1968, years of sunspot maximum, global wheat production exceeded that in the following four years. "The modulation of wheat

production associated with the 11-year sunspot cycle seems to be at least 10% ... it may even be greater than 50% .” More directly, the solar cycle seems to influence temperature and rainfall. The drought which has occurred this year in the U.S.A. has come at a time of minimum solar activity. The question of how solar activity is able to produce these effects has not been answered, of course. Having acquired respectability (it has been discussed in *NATURE*!) this is an area which should receive increaesd attention from scientists in the next few years.

DR. D.P. HUBE,
Edmonton Centre

Keeping the Records—Straight

J.B. Sidgwick in his book OBSERVATIONAL ASTRONOMY FOR AMATEURS* outlines in each chapter the type of observational data that is of value, but he includes one sentence that intrigues me; (Planetary Observation page 105) (e) “The ‘working up’ at a later time of more or less ‘rough’ notes made at the telescope is not a satisfactory practice. Factual accuracy, not the production of works of art, is the correct aim.”

This, added to his exhortation elsewhere that the best and most accurate record is useless if it gets no further than the observation book gets to the heart of a problem. I know of members who start on a program of Variable Star observations, for example, who wonder what they should do with their observations after they are made. I have heard Mrs. Mayall talk of observers, (and I have to confess that the shoe fits) who accumulate a bunch of observations and then send in the group several months late, instead of getting them off at once.

I am among those who don’t particularly enjoy the paper work of gathering up observations and “filing” them. Now there must be amongst our members some who like keeping the records straight. I wonder if our centre activities would benefit if each centre where such a member could be found could involve him in a program of, say, contacting the known observers each month, and getting from them the stuff they’ve written down, then organizing it and distributing the data to the proper departments.

There are many members who don’t make observations. They are welcome and valued members of the Royal Astronomical Society of Canada and of other similar associations of like-minded human beings. Amongst them there might well be somebody who could get a kick out of reporting to the meetings “I got in touch with Mr. Ascension and he observed three occultations this month, which I duly reported for him to HMNO, and Mr. Declination reports two sudden enhancements which I’ve sent off to the appropriate locations, all five of them.” (Boy! How I hate it when the same form has to be filled out in several copies, all such forms being by law designed ever since my Air Force days so that they won’t fit the spacing on my typewriter!)

There are other records that NEED to be kept accurately. We in Winnipeg have two telescopes, brass ones, regarded by our younger members as Ancient Instruments, but both excellent as far as optical performance is concerned. I have written the maker of one of the instruments, in London, England, to try to trace it, but their records were destroyed in the Blitz, and they can tell me nothing of its date or ownership. Aside from their astronomical use, which is much higher than they are accorded, they are beautiful display instruments; but on display we need to know Who, When, Where, if not How. I can’t even discover how we acquired them. In these days of Watergate perhaps I’d better not pursue the matter too far! However, I would like to urge that serious consideration be given at all centres, and at National level, to our keeping scientifically accurate records in all departments even if we don’t thereby produce works of art.

B.F. SHINN
Winnipeg Centre

*Faber & Faber Limited, 24 Russel Square, London, England

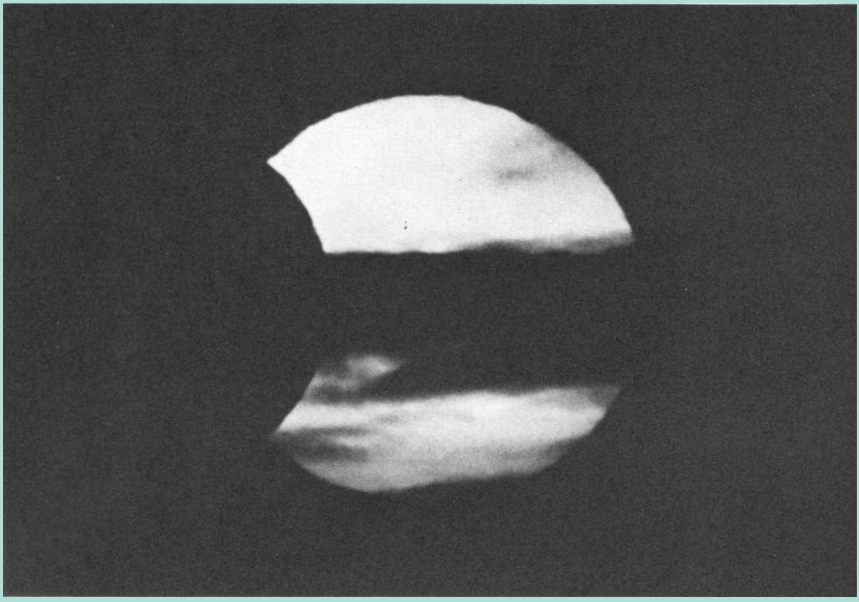
Geminid Shower a Bust (Again)

Rained out ... *again*. I truly feel that we should all take up a much more casual approach to "special events astronomy" or else move south. I look with envy to those of more southerly climes who have such dependable weather that I'm sure they say: "Uh, think I'll watch TV tonight – catch Eros tomorrow." Well, it's in the blood, I'm afraid. For those like myself, we'll always continue to risk manic depression by expecting to see meteor showers. Let's see now, those Perseids next year ... first quarter moon according to *THE HANDBOOK* ... hour of maximum is ...

I should mention that there was a whole troop of people who sped off to the Rolley Lake area just the same, on *both* nights, in the rain. These folks are to be commended, or committed to the insane. I, meanwhile, was sitting in Vancouver, at a staff party, with my car loaded to the hilt with equipment. But I never did make it out of town.

KEN HEWITT-WHITE,
Vancouver Centre

The Partial Solar Eclipse of Dec. 13, 1974



The partial solar eclipse of December 13, 1974 was well in progress at sunrise in Calgary. Mid point of the eclipse was at 08:14 MST and sunrise was at 08:34. The sun was about 30% covered when it rose and the eclipse ended at 09:25.

The photo above was taken with an Exacta camera body mounted on a Carl Zeiss Jena 100 mm aperture f10 equatorial refractor. The exposure was 1/30 of a second on Panatomic X film. A B&L Microline filter of 0.001% transmission was used to reduce the intensity of the light. Bob Nelson and I took the picture from a hill north of Calgary at about 08:45–08:50 MST. (The exact time was impossible to determine as my timing watch stopped due to the cold!)

JOHN FINDLAY,
Calgary Centre

Royal Astronomical Society of Canada
1975 General Assembly

The 1975 General Assembly will take place on the Atlantic Coast of Canada. It will be hosted by the Halifax Centre and will be held at St. Mary's University, Halifax, from Friday, June 27 through Sunday, June 29.

The Local Planning Committee is putting together a program which will combine astronomy with a touch of the sea. One feature of the program, which was popular at the 1974 Assembly in Winnipeg, will be an exhibit display. All members and centres are invited to display photographs, telescopes, accessories, items of historical significance, and any other items related to astronomy which may be of interest to other members of the Society. Awards will be presented for the best displays. If you wish to participate please contact the Exhibits Committee chairman: Mr. Peter Edwards, P.O. Box 201, Bedford, N.S. B0N 1B0.

Members are particularly reminded of the technical sessions. Papers on all aspects of observational, theoretical, or instrumental astronomy will be welcomed and considered for inclusion in the program. Abstracts of about 150 words in length must be sent before May 15 to: Dr. David DuPuy, Department of Astronomy, St. Mary's University, Halifax, Nova Scotia B3H 3C3. Presentations should be about 10 minutes in length in order to allow time for discussion.

Since the holiday weekend will extend for two additional days beyond Sunday, June 29, we hope that the dates selected will encourage many members to attend the Assembly, and to stay a little longer to have a closer look at one of the oldest and most picturesque parts of Canada.

ROY L. BISHOP, President
Halifax Centre, R.A.S.C.

HALIFAX CENTRE

Invites you to come to the

ROYAL ASTRONOMICAL SOCIETY OF CANADA

1975 GENERAL ASSEMBLY

to be held at

ST. MARY'S UNIVERSITY

on

JUNE 27, 28, 29

To assist in planning for events and accommodations, as well as to receive registration forms, please fill out this form and send to: RASC Assembly, c/o Dr. Peter Reynolds, Department of Physics, Dalhousie University, Halifax, Nova Scotia, B3H 3J5.

☐ I plan to attend
☐ I may attend
} Number in my party .....

☐ I desire the Local Planning Committee to make arrangements for me.
Accommodation desired ☐ on campus ☐ hotel ☐ motel

☐ I will make my own arrangements

NAME .....

ADDRESS .....

.....

The 1974 Geminids

Conditions for the Geminid meteor shower seemed ideal this year – a new moon, and the maximum on a Friday night. Forecasts Friday were calling for both "cloudy" and "clear tonight", so nine observers headed on out, at least to remove the snow from the coffins. With skies still socked in at 2 a.m., we decided it best to go home.

Saturday dawned sunny and remained clear. Leaving for Quiet Site quite early, we had four observers signed on by 19:20. Others soon arrived and for a two-hour stretch we had eight official people observing – the first full house this year! By the time clouds moved in at 04:30, we had made 540 sightings of 341 meteors in 48 man-hours. The rate picked up steadily as the night went on, from 10.2 per hour before midnight to 20 per hour after 02:15.

As our Ampex tape recorder was broken, we were forced to use a cassette deck. This resulted in the loss of 30 minutes near midnight when one side of a tape did not record. Now that the communications panel is so nicely fixed up, it would be good to have a suitable method of using it. Hopefully, the Ampex will be fixed before long.

Congratulations are extended to Cathy Hall and Doug Welch, who set a new endurance record of 9 hours and 30 minutes in the coffins, eclipsing the old record by a full 50 minutes (the temp. was +10°F).

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