NOVA NOTES

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1979 Halifax Centre Executive

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UP COMING EVENTS:

FRIDAY 25 MAY at Saint Mary's Univ., room 155 Loyola Building (classroom section at the base of the highrise with the observatory.) NOTE THE CHANGE OF DATE AND LOCATION

Speaker: Walter Zukauskas

Topic: Review of the RASC General Assembly

Walter has been chosen as the Halifax Centre's representative to the GA to be held in London, Ont. 18 May to 21 May. With next year's General Assembly scheduled for Halifax, you may want to see what they're all about. Walter will give a summary of the activities in London- which will include paper sessions, informal slide presentations, competitions and dinners. He might even be persuaded to sing the winning song of the first RASC Song Contest. He will no doubt, have some slides of these activities as well as some of the 48" telescope of the Univ. of Western Ontario.

Following the talk, the Burke-Gaffney Observatory will be open for members to use. We'll serve refreshments to warm you up if it's cool or refreshments to cool you if it' s hot. REMEMBER the change of date and place!

JUNE MEETING: This will return to the regular third Friday (15 June) at the Nova Scotia Museum. On this occasion, Dr. Larry Bogan will present a selection of the fantastic slides of Jupiter and its moons obtained by Voyager 1. By that time some more of the early results from this, the most exciting of all space probes, may be out.

JULY MEETING: In our climate, you shouldn't put your telescope away for the summer. So to help keep up your enthusiasm we'll have a regular meeting on the 20th. The speaker and topic are not confirmed.

CAMPING/OBSERVING WEEKEND: Our third effort along these lines is planned for late July or early August. Details will be forthcoming and this is another reason to keep the old spyglass dusted off.

CENTRE PICNIC IN AUGUST: The August meeting will be our usual summer outing to a local beach, and will replace the more formal Museum meeting. Weather permitting, the spiders will have to find another place to construct their webs. If it's cloudy, bring your camera and shoot the spiders photographically.

NOTE OF THANKS AND CONGRATULATIONS:

This year the Annual Dinner of the Halifax Centre had an added feature. This was the "door prize". We would like to thank Barry Mouzar and Jovian Scientific for the astro poster and astro postcards which were the door prize and token-interim Fr. Burke-Gaffney Award.

For knowing when to purchase his ticket to the dinner, Doug Gilbert won the poster as the door prize. Congratulations Doug!

The winner of the Fr. Burke-Gaffney Award was Bill Calnen for his paper on "Astronomy at King's College, Windsor, N.S." Bill has selected the subscription to the Griffith Observer, and he was presented with the postcards as an interim prize. His paper has been forwarded to the Awards Committee at the National Office for competition in the Simon Newcomb Award

an observatory for a transit instrument at the Dockyard. Its purpose was to determine and compare longitudes telegraphically.

Bill concluded the talk with a discussion of the earliest educational observatory in N.S., founded at King's College, Windsor in 1861. The instruments were acquired in 1810 from Sir John Wentworth, in 1827 from Pierce Morton who donated his instruments to the value of £500 when he was appointed to the Cape Observatory, and in 1842 when John Stevenson purchased the Carey telescope in the U.S. Joseph Everett, appointed Professor of Mathematics, Natural Philosophy and Astronomy, reached Windsor in 1859. His departure in 1864 began the decline of astronomy at King's. In 1872 F.C. Sumichrast charged the college with improper care of the instruments, and his complaints were examined by the new department head, John Oram. Recently, remains of the transit telescope have been found on the site of the observatory. The other instruments are unaccounted for.

The April meeting took place on the twentieth at Chinatown for the Halifax Center's second annual dinner. After fine Chinese fare, the Burke-Gaffney Award was presented to Bill Calnen for his essay on the King's College Observatory. Slides were shown by various members, and pleasant conversation ended a most enjoyable evening.

NEW PLANETARIUM FOR PEI:

Private interests in Charlottetown have recently purchased a 100 seat planetarium. It was obtained in Iowa from a small town. The purchase included Spitz projector, seats and 30 foot dome. The location of the dome has yet to be decided as few buildings have the necessary 25 foot ceilings. Some discussions have been held with UPEI and with their new 14" Celestron and dome, they will be well equipped astronomically if the planetarium is located on the campus. The project will cater to tourists and schools and be run by those involved. Some of the 7 or 8 people have had some experience with planetarium experience. Among these is Heber Jones, a prominent Charlottetown business man. Opening date is around Christmas.

Minutes of the March and April Meetings

The March meeting was held on the sixteenth at the N.S. Museum. Roy Bishop, Randall Brooks and William Calnen spoke on "the history of astronomy in Nova Scotia". This topic was in conjunction with the N.S. Museum's Societies' show.

Roy opened the talk with a sketch of astronomy over 300 years. In 1670 Isaac Newton built the first practical reflector. Rohmer, in 1700, devised the meridian circle and the transit intrument. These achievements were followed by Short's construction of the first good relecting telescopes during the period of 1730 to 1750. The mid 1700's also saw the development of techniques for measuring longitude. The Louisbourg observatory was active in the mid 1700's, as was Des Barres' at Castle Frederick. The modern era of astrophysics was born in the late 1800's.

Randall then took the floor to speak on Joseph-Bernard Chabert's observatory at Fortress Louisbourg, in operation by 1750. Chabert was sent to Cape Breton, from Paris, to chart the coast. His wooden observatory, constructed as protection against the cold, housed an impressive array of reflectors, refractors and quadrants. Chabert worked in Cape Breton until November 1751 when he returned to France. Franquet, the Chief Engineer of Fortifications, may have taken over the observatory after Chabert's departure, and he may have continued astronomical observations. Samuel Holland, appointed surveyor in 1763, also built an observatory at Louisbourg in 1765/6. He contributed charts to Des Barres' Atlantic Neptune.

Roy then spoke on Des Barres' observatory at Castle Frederick, built in 1765. Roy pointed out that this observatory lasted longer than a typical surveying station and, therefore, exceeded the purpose of surveying.

Randall returned to speak on the rating of chronometers at Halifax in the 19th century. In 1851 W.C. Bond of Harvard College Observatory and Peter Shortland constructed

as the Halifax entry. Congratulations Bill, and best of luck for the Simon Newcomb Award!

Michael P. Edwards
President

PS We would like to point out to prospective entrants for the Burke-Gaffney Award, that it is not required that you present an original piece of research to be eligible. Your presentation can cover any topic and could even be a poem as long as it is associated with astronomy. See Nova Notes, Dec. '78 for the rules. Presentations for the 1980 Award may be given to an executive member at any time.

MINOR PLANET TORONTO:

Steven Morris, an incurable Upper Canadian, has brought to our attention the discovery in 1977 by K.W. Kamper of Minor Planet 2104. Members of the David Dunlap Observatory undertook a project to "discover" an asteroid to commorate the 150th anniversary of the founding of the Univ. of Toronto. To find the object, the people involved searched old plates in the Observatory's collections and came up with one taken in 1963 at the Tautenberg Observatory in East Germany. After its nature was checked with previous and new photographs, and the orbit determined accurately, the object was confirmed as a minor planet and given the designation 2104 or Toronto.

CATALOGUE OF COMETARY ORBITS:

The orbital elements of 1027 cometary orbits are given in the 3rd edition of this catalogue. 658 individual comets are listed in chronological order of perihelian passage and date back to apparitions as early as 87 BC. The orbital elements use the best and most recent available and list 113 objects with periods less than 200 years. It was prepared by Brian Marsden and is available from:

Central Bureau for Astronomical Telegrams
Smithsonian Astrophysical Obs.
60 Garden St.
Cambridge, Mass., 02138

Make money order payable to the Central Bureau for Astronomical Telegrams. The cost is $4.00 (US).

FROM THE CENTRES

(Edmonton, Halifax, Winnipeg)

The GREAT ECLIPSE CAPER or WHO HAS SEEN THE SUN?

Mark Freeman,
Edmonton, STARDUST

It was Feb. 24 10:30, Elk Island Park was flashing past us on the left and a gleaming white Porsche 928 was pacing us 200 meters ahead. I was at the wheel, and Lloydminster was only 30 minutes away...!

It was Feb.25, 9:30. Telephone poles were flashing past us on both sides and a gleaming blue RCMP sedan was pacing us 200 meters ahead. Stew was at the wheel and a close encounter with the law was only a few minutes away...

It was Feb. 25, 9:35. The RCMP sedan was now in front of us and now behind us. We were about to learn that the shoulder of the highway in Saskatchewan in winter is a very quiet place.

The footsteps were creaking ominously towards us in the snow. Soon the man asked to see the vehicle registration and Stew's driver's licence. Stew passed the papers to the man in the car window. In one of his more inspired moments, he said "Uh, U of A".

"And I'm with the RCMP", the copper revealed condescendingly.....Miraculously, we drove away minutes later, unticketed but with our seatbelts now firmly fastened.

It was Feb. 26, 8:30. We'd seen a marvelous sunrise an hour earlier, and were out on a countryside cruise, appreciating the two dimensional landscape of Oxbow, Sask. We came upon an abandoned schoolhouse, and decided that it would only be appropriate to stop and investigate since we had in effect abandoned education ourselves (if but temporarily).

After finding an indoor outhouse, among other things, we noticed that the air temperature was dropping severely.

"I'm going to the car to get my mitts and toque", said Doug. Doug was the brother of Ken, one of two friends from Edmonton we had met in Estevan. Don was the other friend. "Is it just my imagination or is it getting dark also"? Bob asked.

"How can that be when the Sun has only been up for 2½ hr.? Not only that, the skies are clear", Norm indicated.

A semi-trailor buffaloed past. The airhorn bleated, the lights flashed on, and the driver pointed up to the Sun. "You see," Kim yelled, "he knows its getting darker too!"

But what could cause it? Something passing in front of the Sun? It was too early for Canada geese to be flying north for the summer. The Moon?--an eclipse? No, nobody could be that lucky...

Doug, a travelling welder's goggle salesman, broke open a pack of filters and passed them around. Kim offered it to Don. "No thanks, I only smoke Gauloises", he said.

We were all looking at the Sun through the filters, spell bound. Being camera buffs, we had set up our equipment and were dedicatedly recording this +6 natural spectacle into which we had stumbled. The Moon's advance would stop, we knew, and then the dark in front of the light would veer away, restoring the time honoured scheme of things. Funny thing is, it didn't. The crescent of light got thinner, and thinner, until--the eclipse went total! Bob, Don, Doug, Ken, Kim, Mark, Norm, and Stew were stunned. Camera shutters clicked continuously, like an ensemble of tin crickets singing the Hallelujah Chorus for 2 minutes and 50 seconds. It was an overpowering experience, with nature succeeding enormously in her attempts to impress us. In those fleeting moments, a new lot of eclipse chasers was born, baptised and confirmed.

THE GREAT ECLIPSE EXPEDITION

as told to NN's by
Mike Edwards

Part 1:

I shuda gone, I shuda gone.

THE ECLIPSE FROM GIMLI, MANITOBA

Roy Belfield,
Pres., Winnipeg Centre

By 7:00 a.m. on February 26th climatic conditions did not appear quite so hopeless, despite the dismal reports of the weather office. I contacted friends in Brandon, Arborg and Riverton, to check on the local weather situation. They all replied with "It's a little hazy, but..." Our group decided (via the telephone) to cancel the plane (we had one standing by without charge, thanks to Guy Westcott and friend) and go to Gimli regardless.

Upon arrival in Gimli, half of the group went to the airport, and we went to the edge of the lake where we set up our equipment--near the statue of the Viking explorer. There were approximately 200 people scattered along the little park; a good many were school children all wearing their sun-visors and paying heed to the adults who were with them.

About 10 minutes before totality, a quiver of expectation rippled through the croud. Chatter ceased as we watched the grey/white expanse of the frozen Lake Winnipeg, and the starkness of the snow-bound landscape take on a softer hue of purplish-blue. Elusive shadow bands darted along snowbanks to the sound of clicking cameras. We briefly observed the lunar shadow as it rushed to engulf everything within its path. Suddenly it was cold--the temperature had dropped about 15 degrees, hoar frost covered the trees. All around the horizon bands of gold coral and deeper reds were seen and photographed. There were squeals of delight over the diamond ring effect, then--totality! Susan Cohn (from California) and Phyllis Belfield were spellbound--everyone was simply awed by the spectacle. Tom Cearns, an old hand at these events, was very calm before totality--almost "ho hum", but when the Moon's disc covered Old Sol he hollered "Wow! look at the prominences". It was obvious that the phenomenon had not lost its impact, even on a person who has seen 3 other eclipses. There were many within our group (myself included) who had not observed an eclipse of

the Sun before. Subsequently, we just stared as if in a trance at the radiant beauty of the corona, and the magnificent prominences around the black disc of the Moon. Then quiet haste--we began trying to capture the incredible sight on film. We were all (Lakeshore and Airport) successful and very pleased with the results. Suddenly the strange darkness ended with a flash of brilliant light, as the Sun slowly emerged from behind the Moon.

The little cafe, where we met for breakfast, was crowded with eclipse observers, many of whom had travelled great distances re-living those fleeting moments of the eclipse. Before leaving for Winnipeg, we all (everyone in the cafe) made a pledge to meet in the same cafe for the next solar eclipse in Gimli--in the year 2263.

THE GREAT ECLIPSE EXPEDITION

as told to NN's by
Mike Edwards

Part 2:
I shud'a gone, I shud'a gone!

SPECIAL PROCESSING FOR EKTACHROMES

For you astrophotographers who use colour slides and send out for processing, then you might be interested in a service Kodak supplies for push processing. It is possible to buy prepaid mailers for the service--just ask the photographic dealer for "Kodak Special Processing Envelope ESP-1". This is suitable for all Kodak E-6 process Professional films.

So if you try some nebular photos and want the development increased to bring out all those little photons but don't want to fuss in the kitchen sink (or perhaps aren't allowed to work in the sink, except to do the dishes, yuk), this might be for you. The lab pushes the speed to double the normal rating, ie. 160 up to 320 and 200 to 400ASA, etc.

STARGAZERS OF ANCIENT EGYPT

Diane Brooks

The sun, moon and stars wove a pervasive spell over the ancient Egyptians. From the shape and orientation of their pyramids to their drama, religion and agriculture, the people of dynastic Egypt maintained an ever watchful eye on the day and night sky.

The first pyramids were fashioned into steps, providing Pharaoh with a ladder to the stars. The Egyptians believed that the stars were divine beings and Pharaoh, who was considered a god in life and in death, could claim his place among the stars once he was deceased. The King desired most to reside among the circumpolar stars, known as the Imperishable Stars, because they do not rise or set. Pharaoh was responsible for ascending to the sky before the celestial ferry would transport him to the stars. The ascent was accomplished through a magical ladder embodied by his permanent step-shaped tomb. The temple, which always formed a part of the pyramid, was consistently built on the north side of the step pyramid so that it may face the circumpolar stars.

As the Fourth Dynasty dawned in 2613 B.C., the sun cult of Heliopolis was becoming accepted as the official religion. In accordance with its doctrine, the King became identified with the sun god and, therefore, required an appropriate method of ascending to the sky. He, thereafter, rose on the sun's rays. The shape of the true triangle-like pyramid was derived from the appearance of sunbeams shining to earth through clouds. This sunburst form was duplicated in stone, producing a timeless conveyance for Pharaoh's use. The pyramid's temple was located on the east side, facing the rising sun.

Although the step pyramid was replaced by the true pyramid, worship of the circumpolar stars was not forgotten. All entrance corridors were inclined toward the Imperishable Stars and served as a means of ascent to this region of

the sky. The north shaft of the Great Pyramid of Cheops slopes upwards by approximately 30°, aligning it with Alpha Draconis - the pole star in Cheops' time. Another celestial location favoured by Pharaoh for spending part of his afterlife was Orion. The Great Pyramid's south shaft slopes by about 45°, arraying the shaft's axis with three stars in Orion once every day. The Pyramid's four faces were oriented almost exactly north, south, east and west. To achieve accuracy, the royal surveyors sighted on stars in the northern sky. The surveying method was considered so vital that the King reenacted the process in religious rites.

Egyptian religion concerned a belief in the power of symbols, and the ancient Egyptians derived much of their symbolism from the sky. They saw the moon as a white skull and the sun as a red face. The night sky appeared to them as an udder filled with milk, while the Milky Way seemed to be the materialization of an elongated torso. Their hieroglyph for the Milky Way reminded them of a serpent; the moon's sign appeared as a saber which would wound the serpent.

The Egyptians saw their gods every hour of the day and night in the sun, moon and stars. The sky god, Horus of the Two Horizons, whose body was the Milky Way, had the sun and the moon as eyes. An ancient myth about the moon's phases related how the wicked god, Seth, plucked out the eye of Horus and tore it to pieces. However, the wise god, Thoth, restored the eye to Horus. The original eye symbol, Iris, depicted Sirius. When the moon approached this star, the moon was thought to have regained its lost eye, creating the bright harvest moon in October. When solar worship became popular, the sun, rather than the moon, was seen to recover its missing eye, producing the fiery sun of June. When a pair of eyes was used as an emblem, the left eye's inner white corner resembled the moon's first phase as seen in the west at sunset. The right inner eyewhite evoked the last phase as the moon rose in the east. The left eye, or "mehit" - the full eye - symbolized the moon. The right eye, or "udjat" - the whole eye - denoted the sun.

Lunar worship and solar worship succeeded each other throughout the dynasties of Egypt. In the Fifth Dynasty (2494-2345 B.C.), homage was paid to the sun and doctrine dictated that all Pharaohs were sons of the sun. (Egyptians revered puns!) During the First Intermediate Period (2160-2040 B.C.), famine caused solar worship to decline, but it revived at the beginning of the Second Intermediate Period (1786-1558 B.C.), coinciding with the arrival of Asiatics and a breakdown of authority at Memphis. The 18th Dynasty (1558-1303 B.C.) was ruled by the sun, then known as Aten. Solar worship attained an apex during the reign of Akhenaten who believed that the sun was the only god. He was referred to as "the dazzling sun disk". Later dynasties venerated Re, the sungod, and Shu, god of the air and bearer of the heavens.

It was important to the ancient Egyptians that earthly things be suffused with mysterious powers by representing them with cosmic shapes and, concurrently, rendering cosmic beings inferior by portraying them with corporeal weaknesses.

In the swampy Delta region of Lower Egypt where agriculture was hindered by wetlands, the inhabitants usually evoked the aid of the solar gods - the sun, the planets, and the dusty desert wind. Conversely, in the dry valley area of Upper Egypt, people called for help on the lunar gods - the moon, the sky and the Milky Way. Sirius' appearance in the east shortly before dawn preluded the flooding of the Nile, which brought prosperity to all of Egypt.

The Egyptians believed that a good dramatic performance should include universal truths, and that theatrical enactments should be based on events that common people could understand. Plays often reflected cosmic events which were clarified by familiar themes. A popular theme was robbery. Just as a flood robs the riverbanks, and canals rob the floodwater, so too could robbery be depicted by celestial events, thus: Venus' position near Sirius is lost to the growing moon. The moon's prominence is diminished by the much larger sky. The night sky is

dominated by the Milky Way, which is replaced in turn by the rising sun. Finally, the sun is deposed by twilight.

The sky provided a celestial stage upon which the cast enacted prominent roles in the lives of ancient Egyptian stargazers.

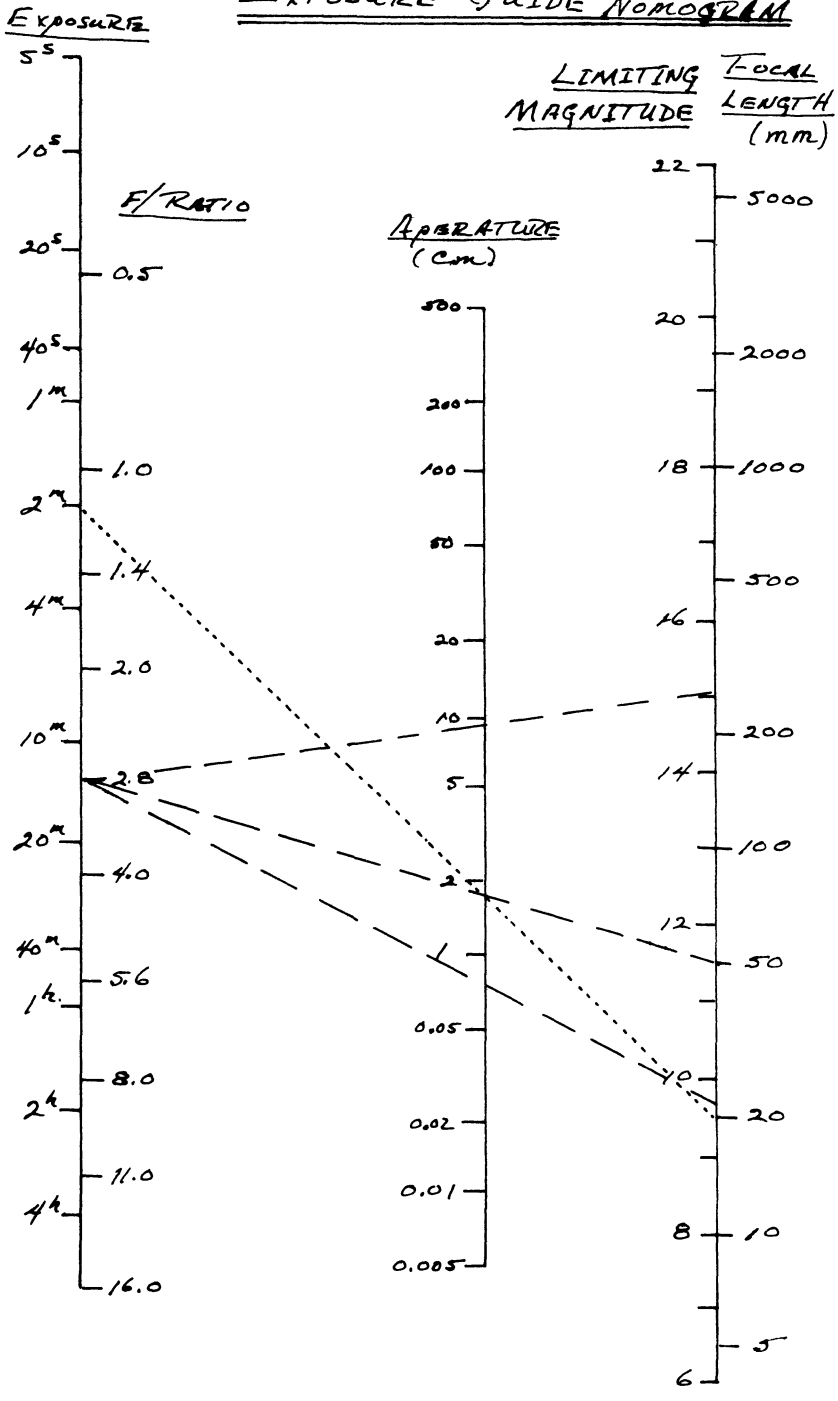
DETERMINING EXPOSURE TIMES

If you're like me, you will occasionally run up against the problem of deciding how long to make an exposure of an astronomical object to make sure it is recorded on the film. The nomogram on the following page will assist in giving the approximate time required. It is designed for ASA 400 film (Tri-X or equivalent) so if you are using a slower film type or if you plan to push process, adjust the exposure time by the appropriate factor, e.g. 200 ASA film would require twice the indicated exposure and 100 ASA would require 4 times more exposure.

The dotted lines represent the factors for the following lenses, 24mm, 50mm and 300mm all operating at f/2.8. The 50mm lens is thus seen to reach objects of magnitude 11.5 in about 15 minutes. With the same exposure the 300mm will reach 15th Mag. stars while the 24mm will only get down to 9.7 mag. On the other hand we may know the exposure of a photo we took last week and may want to determine the faintest objects visible. The fine dotted line is for a 2 minute exposure with the 50mm lens. With this combination we might expect to see a 9.5 mag. star. This of course, assumes that the camera is being guided, the film fresh and the developer not over extended.

An additional problem to contend with is the sky brightness. If you're using a filter to eliminate the nasty form of polution, the times will differ, but a couple of test shots with and without filter will give you the factor for the next session. For long exposures in a lighted area you may not in fact reach the magnitude shown before the film becomes fogged but for most occasions this will probably not be troublesome. By extending the scales you could use this nomogram as a rough guide for meteor photography.

Exposure Guide Nomogram



SKEPTIC

Far star that tickles for me my sensitive plate
And fries a couple of ebon atoms white,
I don't believe I believe a thing you state.
I put no faith in the seeming facts of light.

I don't believe I believe you're the last in space,
I don't believe you're anywhere near the last,
I don't believe what makes you red in the face
Is after explosion going away so fast.

The universe may or may not be very immense.
As a matter of fact there are times when I am apt
To feel it close in tight against my sense
Like a caul in which I was born and still
am wrapped.

Robert Frost

SUN

O great sphere of fusion
And gentle source of life,
Sustainer of confusion:
Mankind's trivial strife.

RLB

HOW TO FLOAT YOUR MIRROR... AND RETAIN ITS VALUE

Mike Edwards

Now that you have finished that mirror which you have been grinding for some time now,.. what is to become of it? That is to say, how can it be mounted? We know and assume it will be used for gazing at the splendid wonders of the universe.

There are various sources of information which suggest many ways and means of mounting the mirror or if you prefer, your work of art. The source of my comments are taken from Amateur Telescope Making - Book One (most comments will be more like qoutations). Sky and Telescope is of course another source of good ideas. If you are not in a great hurry to mount the mirror, and like to travel, then why not plan to proceed to Springfield, Vermont and take in this years Stelafane. There are sure to be some good ideas there.

However to the subject at hand. We want a mount such that it will provide stability for the mirror and also provide for ease of adjustment. The suitable style of mirror cell depends on the size ratio of the mirror ie. diameter to thickness. Large mirrors are floated mechanically. This is done by resting them on a 3 point rigid support, with additional pivoted and weighted supports which then take care of individual areas of the disk. The weights are a problem for smaller mirrors. The general rule is "the mirror must rest on a number of self-adjusting supports, geometrically symmetrical with each other in relation to the circular bearing face of your mirror's disk, and each taking an equal share of the weight". As Book One does, lets consider the case of three point flotation for a 10 inch mirror. In a circle of such radius that the mirror is divided into two imaginary portions- an inner disk and an outer annular ring of equal weight and area. A 10-inch disk has an area of 78.54 sq. in. Half of this is 39.27 in^2. This is equivalent to an area of that of a 7 in. diameter circle. The three supports would be placed 120 degrees apart at a $3\frac{1}{2}$ inch radius.

This is called the radius of equilibrium. Such a support system may take the form of an annular ring of 7 inch mean diameter and of one inch in width . It would be best to glue pieces of cork to define the areas of support.

This support system can be expanded . If we try by pivoting a three point support on each of the original three we find ourselves in difficulties. We now have nine points of support, they are not symmetrical if considered circumferentially. That is each point cannot be arranged to support an equal area. If the number of points is increased to eighteen, we arrive at a particularly fortuitous arrangement which is geometrically sound. Again the disk may consist of two imaginary portions, the central circle and the outer annulus. The radius of equilibrium of each is determined and spaced symmetrically. This places twelve supports under the annulus and six under the central circle. Many more variations are possible of course but these would apply to much larger mirrors than we might be cranking out.

Apart from the support of a mirror cell, we need an arrangement where-by the necessary alignment procedures may be carried out with as little as possible effort in tilting the entire cell. The cell base will not only hold the flotation points, or pads, but it must also contain brackets which clamp the mirror to the base, obstructing a small portion of the front of the mirror. Attached to the base plate might be the mounting plate, which is to be attached to the telescope tube. The hardware which connects the two plates (seperated by coil springs) is generally the same hardware which provides a way to tilt the base plate with mirror for the alignment and collimation adjustments.

Materials may be hardwoods, plexi-glass, aluminum, sheet metal and glues, screws and bolts.

In short it is not necessary to spend a great sum of money or to send for a "store bought" mirror cell. Why not build it yourself?

FIGURE 2

DATE:

TIME (AST):

SEEING
(1 POOR,
10 EXCELLENT):

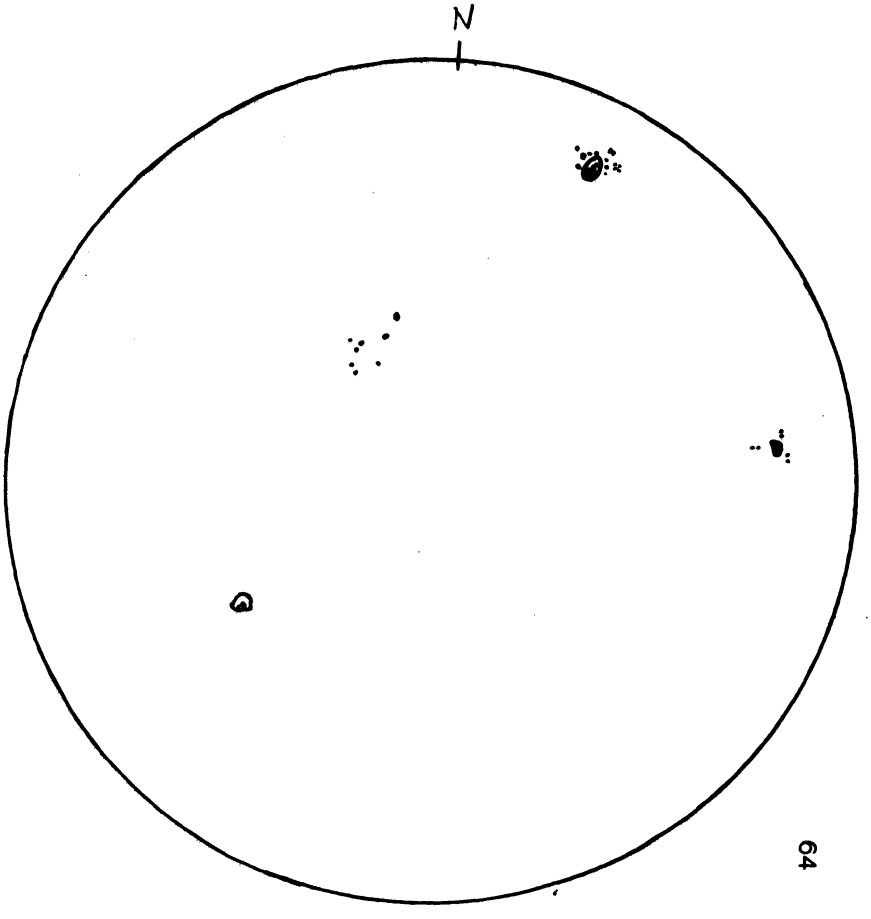
INSTRUMENT: COPERNICUS

LOCATION: SMU

SUNSPOT NUMBER:

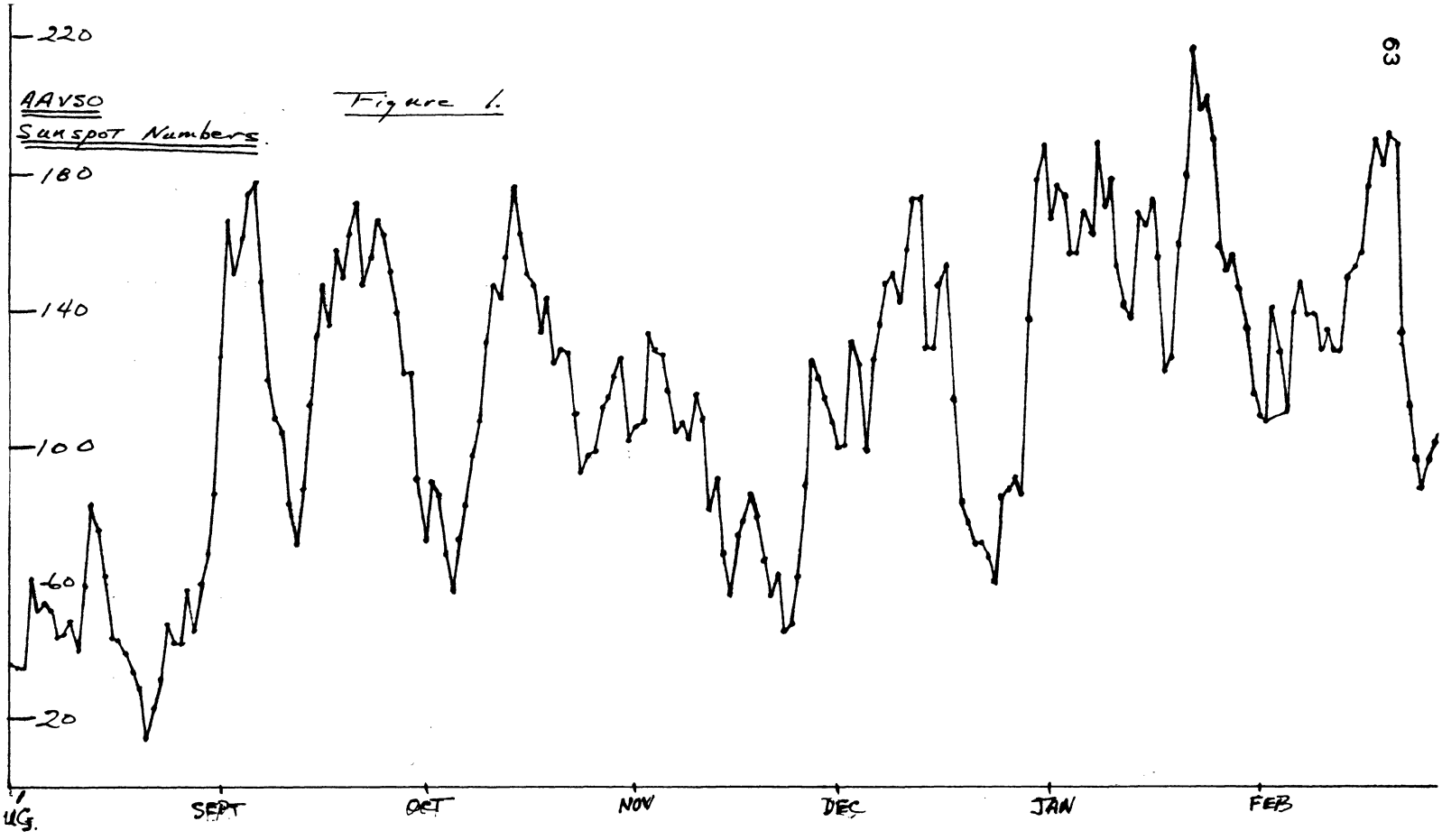
GROUP NUMBER:

J.D. (2440000+):



AAVSO
Sunspot Numbers.

Figure 1.



Solar Observing and Aurorae

by Steven Morris

The last many months have not been too kind to observers in the Maritimes; the almost constant overcast has kept the sun, not to mention the stars, well hidden from view. Skies have been clearer elsewhere, and the AAVSO sunspot observations show a gradual increase of activity over the past six months, as shown in figure 1. The several large peaks in the curve are due to particularily active sunspot regions that have occurred. Figure 2 shows a rough sketch of the sun drawn on April 24, using a 3½' Questar telecope. Four sunspot groups are present, containing 35 individual sunspots. The evening after this sketch was made, a particularily fine auroral display was visible over Halifax. The aurora began in the north soon after sunset and by 23:00 AST there were two bright curtains of aurorae about 20 and 30 degrees above the horizon, stretching from NE to NW. Using the aurora code printed in the last issue of Nova Notes, I would classify both curtains as R2B, that is a band of medium-sized rays. The detailed structure of the bands changed on a time-scale of about a minute. At times a corona formed slightly south of the zenith, formed of rays that would occasionally flare in brightness for a few seconds. By midnight the corona had disappeared and the two curtains were fainter but still visible. I didn't notice any colours but I was in the south end of Halifax; observers in the country doubtless saw a more spectacular display. This should be a fine summer for aurorae, so on clear nights, even if you are not planning to do any telescope work, you might want to step outside for a few minutes to check on aurorae. And even if you don't see any, a dose of starlight never did anyone any harm.

SAUNTERING THROUGH SUBURBAN SKIES

Jody LeBlanc

There seems to be a popular misconception that for any observing to be worthwhile, (regardless of size and type of telescope or the object to be viewed), it must be done far from city lights and without a trace of the moon in sight. Now if you're going to attempt some piggyback photography, using fast film and lenses, or intend to search for some elusive Messier object, there is something to be said for this "begone, vile lights" attitude. But for a fair slice of most people's observations such an attitude amounts to overkill.

Of course lunar and planetary observations are a natural for in-town observations, but some heckler is sure to make a comment about the city's poor seeing. To a large extent, this "poor seeing" idea is a myth. In-town seeing can be surprisingly good after things cool down a bit (say after 11 or 12), unless you're unlucky enough to live on the lee side of town, in which case you should stick to solar observing or make a trek to a more suitable site. Local seeing is a bit harder to predict than in the country, but with practice and the knowledge of a few likely trouble spots, one can become fairly adept at judging. Anyway, it's not such a hassle to set up in your backyard . Sometimes (look of embarrassment) the seeing problems can be fixed by putting out your own fireplace.

"But you'll never see anything with all those lights shining down on you." Another myth, says I. With careful placement of a few shades (hedges are great) and the cooperation of a few neighbours, most lights can be forgotten about. Although, invariably you'll end up with one streetlight or 750 watt porch light to spoil things. "Even so, general skylight kills everything but Venus anyway." Does it? A lot depends on the observer's location and the weather, (if there's any haze, all the light comes right back down--on these nights I usually have a look at Venus). But using my backyard as an example, it is possible (excepting the direct glare of the city due east) to expose Tri-X rated at 1600 for 10 minutes with an F3.5 lens and

still get printable negatives. (I will admit printing times are a bit extreme.)

As far as visual stuff goes, everybody's equipment is different, so try it and see for yourself. Slow refractors do cut down on the glow a bit, (in this respect, telephotos and larger-format cameras are better in the city), but the only people who say large, fast Newtonians are no good in town haven't tried them. Our club's 8" f/6 is as nice to use in town as out, although perhaps slightly higher powers are used in the city on brighter objects such as M42. Stellar objects respond very well to this high power, blacker background technique and the views of the smaller clusters are surprisingly good.

Another advantage of backyard observing is the close proximity of a warm house, warm clothes and whatever it is you usually forget to bring. (I once drove out of town for an hour, whereupon I realized I had left my cable release home!)

So the next time you feel like observing but don't feel like a long drive, try out your backyard. You may be surprised at the view. Do I envy those who live in the country?--you bet!

Note to fellow black and white adicts: Ilford has introduced grade #5 Ilfospeed, which should come in handy in a lot of astronomical printing. If you've goofed in the other direction, they've also brought out a #0 as well.

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