

◆ Event Horizon ◆

Volume 1 Issue 8

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Editorial

The summer is finally here! And with it comes the nice observing weather, we hope, Starfest, the HAA Star Party and, of course, the Jupiter Splash. ("Something very special is going to happen.")

Since there will be so much going on in the upcoming months I have decided to do a summer issue. Undoubtedly the efforts of Charles Baetsen and Richard Petrone will yield some interesting results. They are planning on assembling strip-charts of Jupiter to record the changes the collisions will have on the planet.

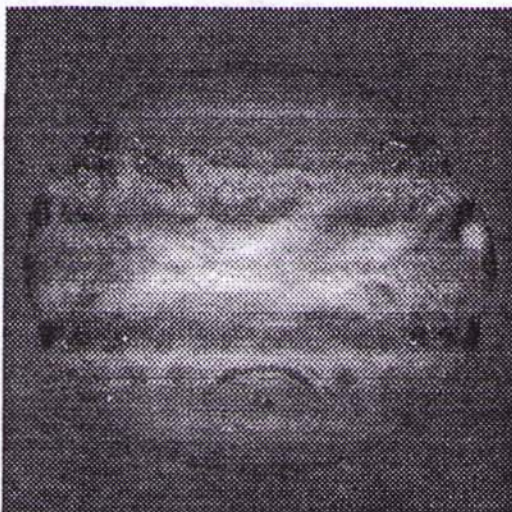
Perhaps you have some summer observing project (I do, but watching heavenly bodies on the beach does not merit publishing here) that you would like to share or get others involved in.

Someone will surely want to describe the events at the HAA first annual Star Party (HINT, HINT, HINT).

Enough begging. If you have any ideas, articles, or drawings, you know where to send them.

Have a great summer and may clear skies follow you wherever you go.

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*Celestron Optics?
No, it's Jupiter after the impact (maybe.)*

Chair's Report

Looks like we've got ourselves a new out-of-town observing site. I finally had a chance to visit the Mountsbury Conservation Area last week. This spot was stumbled upon by Bob Botts and has excellent horizons, a scenic view, dark skies, and best of all -- "facilities". The parking lot holds many cars and is perfect for setting up scopes. Encounters with park rangers have generally ended peacefully.

Kudos to Stephen Sheeler for his heroic rescue of last month's issue of Event Horizon. Just as the issue was being "put to

bed" a devastating disk crash sent him back to square one. Word on the street is that he re-assembled the text electron by electron and had it in everyone's hands by 8pm on Friday. Being an editor is thankless enough without this kind of assistance from one's computer!

We recently had an opportunity to appreciate just how much Grant Dixon does for public education and for our group. Grant landed a nighttime electrical contract which made giving planetarium shows impossible for three weeks. During that time Stephen Sheeler gave four shows, Patricia Marsh, Richard Petrone, Pat Durrell and even yours truly gave individual shows. Now that "Grant Appreciation Month" is over, we all have a better idea of how much effort is involved! Thanks to Patricia for organizing the shows and making sure that someone was always there!

Last month I mentioned that two HAA awards had been contributed by Jim Winger to contestants in the Hamilton District Science and Engineering Fair. However, I neglected to mention who the winners were. Wonder no longer - they were Haien-Yeang Scow of St. Vincent for the project "Solar Energy" and Jeff Martin of Rolling Meadows for "Refraction: How Light Misbehaves". Congratulations to both.

Inside This Issue

- | | |
|---|---|
| <input type="checkbox"/> COMET SHOEMAKER - LEVY | <input type="checkbox"/> QUANTUM CONDITIONS ~ PART 2 |
| <input type="checkbox"/> OFF THE BEATEN PATH | <input type="checkbox"/> THE COLOUR PURPLE |
| <input type="checkbox"/> GREEK IN THE ROUND | <input type="checkbox"/> UPWARD SKYBOUND |
| <input type="checkbox"/> JUNIOR GROUP | <input type="checkbox"/> JUPITER OBSERVING WORKSHOP |
| <input type="checkbox"/> WHAT'S YOUR I.O? | <input type="checkbox"/> "PARFOCALIZING" YOUR EYEPIECES |

We have had relatively good weather recently, so it looks like the summer is off to a great start. Jupiter will be well-placed and especially interesting for observation during June and July, due to its impending encounter with Comet Shoemaker-Levy 9. So, blow the dust off those objectives and get outside and observe!

Doug Welch

Periodic Comet Shoemaker - Levy 9 (1993e)

This is an impressive name for a comet. Next month this comet may do something very impressive - then again maybe not. In July, comet 1993e will impact Jupiter at over 200,000 km per hour and the results may be visible for decades - then again we may see nothing at all. There have been countless articles about 1993e in astronomy magazines, newspapers, Time magazine and who knows where else. One thing that is fairly consistent about these reports is how cautious people are in predicting what will happen. Much depends on how large and how "solid" the comet fragments are. Fragments!? If you haven't heard by now there is something else interesting about this comet. It has been calculated that on July 8, 1992 this comet passed within 50,000 km of Jupiter's cloudtops and broke into a number of smaller pieces - 21 at last count. This breakup occurred before the team of Shoemaker-Levy discovered it on March 24, 1993.

I will give you a summary of the reports that have appeared in *Astronomy* and *Sky & Telescope*.

-June '93 Sky & Telescope

Brian Marsden calculated that Comet Shoemaker-Levy 1993e could have passed within 0.007 astronomical unit of Jupiter and been ripped apart by tidal forces. This is not the first time something like this has happened. In 1889 Periodic Comet Brooks 2 was discovered in several pieces three years after it is believed to have passed very close to Jupiter. 1993e is believed to have an 11 1/2 year period. [Note: At this early date there was no indication that 1993e would return within 2 years to impact Jupiter.]

-September '93 Astronomy

Comet 1993e passed within 31,000 miles of Jupiter's cloudtops on July 8 1992. Donald Yoemans of Jet Propulsion Labs estimates the odds of collision at 64%. If the fragments hit with a glancing blow they may end up orbiting Jupiter or break apart and form a Saturn-like ring. When the nuclei hit the atmosphere they will be travelling at over 200,000 km per hour.

-December '93 Astronomy

July 18 10 hrs UT the first fragment will impact Jupiter and July 24 at 0 hrs UT will be the final impact. Impact sites will vary over a latitude of 41 deg to 47 deg south on the far side of Jupiter about 55 deg around from the sunrise side of the planet. It will take about 90 minutes for the impact sites to rotate into view. At the time of impact the nuclei will be spread over 30 million km. Fragments 5 km in size will release energy equivalent to 500 million megatons of

TNT. If 500 metres in size there will still be visible cloud effects.

-April '94 Sky & Telescope

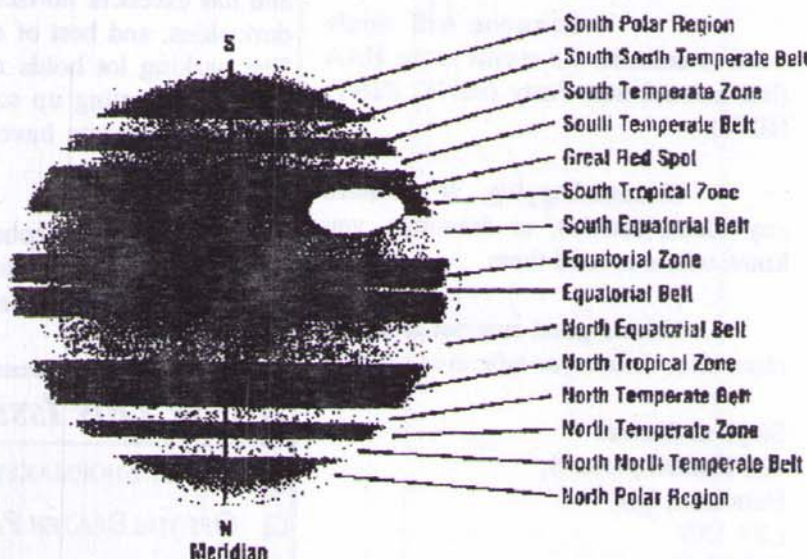
Pictures from hubble taken Jan 24 - Jan 27 '94 show 20 nuclei spread over 605,000 km.

-April '94 Astronomy

This is an excellent article which concentrates on the observation of Jupiter. Very briefly, the effects of the impact which may be visible to amateur astronomers could mimic some of the details that are normally seen on Jupiter. If this is the case it is VERY important to become familiar with the appearance of Jupiter in the weeks leading up to the impacts. Jupiter is always an interesting planet to look at as there is a huge amount of ever changing detail in the clouds of this planet. In fact, there are names for many types of cloud formations.

Projection: A dark protuberance on the edge of a belt. Common on the south edge of the North Equatorial Belt.

Festoon: A dusky filament looping out into a zone from the edge of



Jupiter's Bands and Belts

a belt. Frequently seen in the Equatorial Zone.

Oval: A white round or oval area that is fairly bright and well defined. Common on the south edge of the North Equatorial Belt.

Rod or Bar: A very elongated dark condensation with its major axis parallel to an adjacent belt.

Nodule: A small bright spot, usually round and not much larger than the disk of Ganymede, Jupiter's largest satellite. Often seen in the south polar region near the latitude of the South South Temperate Belt.

Rift: A long bright streak extending horizontally along the interior of a belt. Common in both the North and South Equatorial Belts.

-May 94 Sky & Telescope

Astronomers will monitor Jupiter over a wide span of the Electromagnetic spectrum.

I think that the best advice at this time is to have a look at Jupiter at every possible opportunity to become familiar with its present appearance. An excellent way to do this is to make sketches. It is amazing how much more detail you will see when putting your observations to paper. I think this is especially important if you want to have a good record of what you see during and after this unique event.

One last note, forget about seeing the comet before it hits Jupiter. It will be at approximately Magnitude 14 which will be too dim to see beside bright Jupiter.

Stewart Attlessey

Off the Beaten Path

Finally summer has arrived, which means some of the best objects in the night sky can be seen over the next few months. The glorious Milky Way, visible in the summer sky, contains objects for everyone's pallet. Cruising from Cygnus to Sagittarius there are many binocular objects. All are not just simple open clusters but many are actually quite spectacular.

One of the most interesting objects is an open cluster. This is Cr399 otherwise known as the Coat hanger, which truly looks like its name. The Coat Hanger is located in Vulpecula just north of Sagitta. This is one of those objects that stands out even when you are not looking for it.

Cygnus, to the north, contains many beautiful nebulae. Two of the most famous, the Veil and the North American nebulae, are often overlooked by most amateurs because they are believed too faint and difficult. In fact since it is so large, the North American nebula is best seen in binoculars on a very dark night. It is located just east of Deneb and is believed to be powered by Deneb itself. The Veil, otherwise known as the Cirrus nebula because of its resemblance to that hated cloud, is a bit more difficult, but with an OIII filter at low power it will pop into view, even in suburban skies. It is also possible to see the brightest parts of the Veil in binoculars in very dark skies. This past month, at Rob Dick's near Ottawa, I was able to make out the Veil as a ghostly circular object in 11x80 binoculars. In an 8" scope some of the filamentary nature of the Veil can easily be seen. The Veil is easily located because it passes through the field of 52 Cygni.

Ophiuchus contains some of the finest star clouds in the Milky Way. These star clouds are mottled and streaked by an intricately shaped dark winding lanes of so

called "dark nebulae". Dark nebulae are like ordinary nebulae except there is no nearby stars around to illuminate it. In addition, some dark nebulae contain dust particles in addition to the usual hydrogen gas. To see these dark nebulae requires a very dark sky and a good pair of binoculars. Most dark nebulae are designated with B numbers after E. Barnard (whom Barnard's star is named after). B78 is the largest dark nebulae in the region (next to the great rift itself). It is part of the Pipe Nebula which stretches eastward in the southern part of Ophiuchus. A small extremity of the Pipe nebula, B72, is known as the Snake or S-Nebula. It is located 1.5 degrees north of Theta-Oph. It is often shown in photos like in last year's RASC calender.

Even if it not dark enough to see the dark nebulae running through the Milky Way, scanning it with binoculars can still yield some spectacular views of open clusters, emission nebulae like the Lagoon, Swan and Trifid and lots of globular clusters hanging around the "bulge" of the Milky Way. So on the next clear night, be adventuresome and go off the beaten track. Enjoy the some of the new scenery.

Charles W. Baetsen

524-0148

JUPITER LOG

Included with this month's copy of Event Horizon is the "official" HAA Jupiter observing form, the "Jupiter Log". Photocopy it and use it for you Jupiter observations. Observations should be given to Richard Petrone (547-2589) or Charles Baetsen (524-0148). Observations will be combined into strip charts and returned ASAP. To use the form, complete the header information remembering to enter the time zone (i.e., EDT, UT etc.). The duration of the drawing should be kept to less than 15 minutes due to the fast rotation of Jupiter. You should also wait at least an hour between drawings. For each drawing, fill in the information indicated on the form. Seeing Conditions and Transparency are subjective observations, but you will get better at judging them as time goes on. The more observations we get, the more accurate our data. This is particularly important if we want observe the effects of the comet impact in July.

Charles Baetsen (524-0148)

Greek in the Round

Have you read your Horoscope today? Here's a little something to cogitate. We all know that due to precession the stars make subtle changes over the course of many, many years. The ecliptic is no exception. While the stars have been whirling around we now have a different zodiac to look at. Two thousand years ago, when the zodiac was made up, astronomy and astrology were one subject. They have since separated and gone there "separate ways". The 12 zodiac figures with which we are all so familiar are based on the star patterns and times of two thousand years ago. I promised last month to publish the now 14 zodiacal signs of the ecliptic path. Astound all your friends and those astrological believers with this bit of information. So here it is, the news you've all been waiting for... The "CURRENT ZODIAC".....

THE CURRENT ZODIAC

ARIES	April 18	May 12
TAURUS	May 13	June 20
GEMINI	June 21	July 19
CANCER	July 20	August 8
LEO	August 9	September 15
VIRGO	September 15	October 29
LIBRA	October 30	November 21
SCORPIUS	November 22	November 29
OPHIUCHUS	November 30	December 14
SAGITTARIUS	December 15	January 17
CAPRICORNUS	January 18	February 14
AQUARIUS	February 15	March 10
PISCES }	March 11	April 17
&		
CETUS }	March 13 & 14	

* Ophiuchus (the doctor) now holding a substantial time slot of two weeks, was the first new constellation to enter the ecliptic path since the zodiac was created.

* Cetus (the Whale), is the newest constellation to have entered the Ecliptic path, and its two day run interrupts the

region which Pisces dominates..

* Scorpius will likely drop off the Ecliptic path.

* Because of precession, the sun on the day of the Vernal Equinox is now well into the constellation Pisces. The first point of Aries will continue to shift and in another few hundred years it will move into the constellation Aquarius, and the real Age of Aquarius will begin.

"Wish Upon a Star"

Ev Butterworth

Junior Group

On Monday May 18, the first meeting of the Hamilton Amateur Junior Astronomers or HAJA (Is the 'J' pronounced like the one in "Baja?" -Ed.) was held at Westmount Recreation Centre. Sixteen children attended ranging in ages 4 to 12. The topic was "The night sky and the Solar System". Children participated in a learning session on the planets, and were given paper to draw their favourite planets or the Sun. The group was a huge success, and another meeting will be held in July 18. Details to follow in the summer issue of Event Horizon. I would like to thank Ev Butterworth, Trish Marsh and, Ann Tekatch for help setting up the room and giving me loads of confidence. I hope that the next meeting will have tons of children and the new topic will be - "Things that Fly in the Night Sky"

SeeYa

Patti Baetsen

524-0148

What's Your I.O.

Id like to introduce myself, IO. I do hope to draw your attention to this region of the galaxy like a magnet each month. Over time, I've observed that the human race has long been infatuated with knowledge, and in particular how much they know themselves, or as Earthlings call it, their IQ. Well, here is the particle of space occupied with just such trivia for your amusement. Each month I will challenge each of you from the very young, the brand new astronomers and right on through to the experts. As this is the first particle, it may seem rather easy, however I assure you I will provide much more perplexing questions. Do your research! Have fun and may your I.O. be higher than you expected.

- 1) What is the difference between a planet and a star?
- 2) What is a satellite, and how many natural satellites has the Earth?
- 3) Name the planets, in order of distance from the Sun.
- 4) Does a comet's tail point a) toward the sun, b) away from the Sun, c) sideways?
- 5) What was the name of the Danish astronomer who was the first to measure the velocity of light?
- 6) What happened to Biela's periodical comet, and where is it now?

How did you do? Look for the answers and more questions in the next Event Horizon.

IO

The Keeper of The Flame
Jupiter Co-ordinator

Quantum Conditions in the Cosmos ~ Part 2

Velocity c

Since Einstein developed his Theory of Relativity, people have accepted the dictum that the velocity of light is the maximum velocity which can be achieved in the Universe. At the same time, the restriction has been questioned and strongly doubted. It seems so strange that it should be impossible to go even just a little faster than c . It goes against the concept of freedom and free will to many. Just as a road speed limit for many is not a limit to be observed but a restriction to be challenged. Theories have been developed and books written on what might happen if the velocity of light were exceeded. Travelling in Time or Hyperspace, travelling at Warp Speed, etc, are popular ideas.

However, a logical approach finds that a limited velocity is not just a quirk of Nature. It is absolutely essential to the existence of the Universe, and stems directly from the quantum conditions which regulate its workings. It has been noted that space and time are quantised, forming the measuring sticks of Nature. These quanta are finite quantities. Therefore, if the velocity c is a 'Natural Velocity' associated with the Universe and equal to quantum space divided by quantum time, it also is a finite quantity. If velocity could be measured beyond that, it would mean that the quantum time for travelling a quantum length would be reduced or sub-divided. This is indeterminate. Particles under quantum conditions cannot measure sub-quantum values. Therefore the velocity c is finite and is the maximum velocity, indeed the only velocity, directly measured by particles. It will be shown that lower velocities are 'measured' indirectly during interactions.

We can make several deductions regarding the particle metrics. A particle will interact only with other particles which have the same metrics as itself. Two particles, one operating in feet and inches and the other operating in centimetres and kilometres, would not interact. Such quantities as mass, momentum, and energy would be measured differently and there are no conversion factors in Nature. Particles must resonate to interact. A particle based on centimetres cannot accept foot-pounds of energy from another particle based on Imperial measure. If two particles are to interact they must contain the same metrics of space and time (or frequency) in their structures. A particle may contain more than one frequency in its structure, of course, then it could interact with a second particle in one frequency and with a third particle in another frequency. Those interactions would be different and independent. So particles can have different properties depending on their metrics and those of interacting particles. If a particle has a metric L , it is not aware of any other metric less than L . It could be said that for particles, it is L or Nothing. If a particle is to measure distances to other particles, its structure must extend to at least those particles' datum points. Considering the range of gravitation, it is obvious the particle structure must extend to astronomical distances.

If a particle structure has a radial extension or field reaching out into space, the particle cannot use it to measure distance if the metrics in that field are constant. If we use a measuring stick to find a distance, we count the inches or centimetres. A particle cannot do that because particles do not know how to count. So it must be inherent in the structure that the metric changes with distance from the centre reference point. There must be a function relating distance ' r ' from the centre to metric conditions at ' r '. It is necessary to find the interaction of a particle to the local metric conditions of the field of a second particle, and also find the function which converts local field conditions to distance from the particle

centre.

$$\text{Distance to centre} = r = f(L, T) = f(n, t) \quad \text{Eq. 1.}$$

$$\text{Field at } r = f(r) \quad \text{Eq. 2.}$$

This is a mutual effect, of course, which is why the field metrics and conversion functions must be the same for both particles to interact.

The radial field is involved in linear radial properties only. It is not involved in any circumferential or tangential properties. To measure these, and rotations, the particle structure must have two things. One is a datum frame which is irrotational. This can be furnished by the radial field and geometry of the particle structure. The need for an irrotational reference datum has long been recognised. Newton spoke of such a datum in space. Mach proposed the 'fixed' stars as this datum. Neither of these is satisfactory as they are outside the particle. It needs a datum inside its structure, to which it references the outside world.

The second requirement is for a rotational metric which can be used as a reference to measure rotations and rotational velocities. This must again consist of a metric related to L and T , travelling at velocity C and this must be located on a circumference which is distant from the centre by L or a dimension related to L . Transverse motions of other particles are measured on this circumference, not from the centre point.

So what we should expect to find in a particle's structure is a radial field reaching out in all directions to astronomical distances. This field changes in a way which is a function of distance from the centre. There will also be a circumferential metric at a certain 'radius' from the centre, forming a Quantum Sphere. This metric is of constant wavelength. It does not measure distance so it does not have to be 'counted'. All particle properties are functions of these two metrics.

Before continuing, the nature of these metrics must be clarified. They are

not to be viewed as waves of some 'aether-like' substance existing in a background of space and time. They are to be viewed as metrics OF space and time. It is not that we measure these metrics IN space and time, using measuring sticks and clocks. They ARE the measuring sticks and clocks by which we are aware of space and time.

If the metrics are viewed as waves, consider that a wave varies from maxima to minima in intensity or some other quantity. For these waves, this variation represents a complete absence (minima) or a complete presence (maxima) of space/time. This is rather akin to the present view that waves in quantum theory and electrodynamics are waves of probability of finding particles in space. The mid or mean is a 50% chance of finding or not finding space/time. This is the symmetrical position and the wave alternates either side of this mean. The treatment of them will not be taken further.

The appearance of the Universe, created from nothing, seems to defy the conservation laws held so dearly by scientists. It has long been a source of concern and conjecture about how this could be. In quantum theory and electrodynamics where forces are regarded as being the exchange of photons and mesons between particles, these photons and mesons are regarded as virtual, rather than real particles. Under the cloak of the Uncertainty Principle their existence can be accepted provided it lasts for less than a quantum time as determined by that Principle.

In the theory on which this paper is based, particles are regarded as consisting of virtual waves which cannot continue unchanged over a node in the structure, because to do so would violate the conservation laws. Thus, if a wave travels from node 1 to node 2, on leaving node 2 it must have changed in some way. The manner of it changing is also controlled. It cannot change energy, nor can it decrease in entropy, ie, it cannot increase in frequency. It is required therefore to reduce frequency, increasing

wavelength, and maintain energy by increasing 'volume.' In this way, the wave will eventually reach an undefined minimum quantum condition and maximum entropy value and become sub-quantum. That is, the wave will drop below quantum level and disappear (become zero). It can therefore be regarded as a temporary event and its formation is sub-quantum, not subject to the conservation laws. However, the structure formed by the continuing stream of waves is permanent with the quantum sphere as its source and any change to it will be subject to those laws so far as the change affects interactions governed by quantum conditions.

One other condition is anticipated. That is that when one wave is initially created, an opposite wave is also created. This is seen to occur in particle creation where, if a particle is created, an antiparticle is also created. This also is in accordance with the conservation laws.

John Lawson

For Sale

FOR SALE:

35mm Praktika L2 Camera

Fully manual operation. Suitable for astrophotography. Includes 50mm f/2.8 lens, 2x telextender, and t-mount ring for adapting to other astronomical instruments. Lens are screw type (i.e., widely available). Price: \$75.00

Contact Charles Baetsen 524-0148

The Colour Purple (Indigo, Green, Yellow, Orange and Red)

It is pretty rare for a new product in an astronomy magazine to pique any interest in me. So I was very interested when I heard about a new visual spectroscope at a reasonable price (\$130 US). This is not to say that visual spectroscopes haven't been available on the market - there are a few so-called "direct vision" prism spectroscopes sold through Edmund and others sources - but the cost has always been in the neighbourhood of \$400-500 US.

The new source of reasonably priced spectroscopes is Rainbow Optics (1593 "E" Street, Hayward, CA 94541) and the company motto is "Beauty in Starlight". The ad claimed that one could write for free information, so I jotted off a letter and received a reply almost immediately from Jim Badura, the owner. The pamphlet explained how the spectroscope works: a blazed, glass transmission grating screws into the bottom of your eyepiece to disperse the light and a cylindrical lens fits over the top of the eyepiece to give the spectrum some width (which makes it far easier to see the lines).

Naturally, I ordered one! One look through the grating made it clear that this was a high quality product. The zeroth order spectrum was almost invisible and the first order spectrum on one side was very bright. The grating is protected from the observer and the elements by thin glass plates. To obtain greater dispersion you can either use a shorter focus eyepiece OR place the grating farther away from the eyepiece! Too short a focal length eyepiece is not desirable since the cylindrical lens needs to be positioned above the last lens and some eye relief is desirable. The width of the spectrum is determined by the exit pupil. Some rational balance between

spectrum length and width is required since there is only so much light to go around.

I first gave this device a try at Rob Dick's open house on the May 13th and 14th weekend. The first telescope I used was a homemade 8" f/6 owned by an Ottawa Centre member. Vega (A0V) was our first target. The hydrogen lines are very strong in this star and the H-beta line was dark and obvious. Less obvious, but still visible, were the red H-alpha line and the violet H-gamma and H-delta lines.

Arcturus (K2III) was up nice and high and many lines could be seen, although the contrast was much lower than hydrogen lines of Vega. The g-band and Mg triplet could both be seen. Spica (B1V) and Regulus (B7V), both relatively hot stars showed hydrogen lines, but not with the same contrast as Vega. Regulus is rotating very quickly and this broadens the lines and gives them lower contrast.

The late-type primary of Alpha Her (M5II) was quite spectacular due to the many deep TiO bands visible in its spectrum. Even though this star was considerably fainter ($V=3.1$ mag) than the others attempted so far it was still spectacular. The even fainter variable star R Lyr (M5III), shining at $V=4.0$ mag (or thereabouts!) still put on a good show. When Antares (M1Ib) rose, it too showed many deep bands.

Since planetary nebula give off there light and only a few emission lines, they are natural targets for a visual spectroscope. In fact, only one of these lines can be seen visually in the light of most planetaries, the light from twice-ionized oxygen at 500.7 nm. So, I took the cylindrical lens off and hunted for M57 - the "Ring Nebula". Sure enough, the surrounding field was full of short streaks due to the spectrum of stars, but M57 itself looked unaltered. The ring is a nice big target, but many other planetaries are only a few arcseconds across and are much less obvious. Both NGC 6826 in Cygnus and

NGC 6543 in Draco were trivially found using the spectroscope.

There is very little which compares with the beauty of a stellar spectrum - especially a nice late-type giant spectrum rich with titanium oxide bands. I strongly urge you to give amateur spectroscopy a try - you won't be disappointed!

Doug Welch

Upward Skybound

June has some exciting news to bring the HAA members. **We now have an official observing site.** I'll tell you about it at the end of this article. The warmer weather has finally arrived and with it shorter observing nights and mosquitos. Get out the bug repellent and get in as much of the nights as you can. Jupiter is the focus of the summer. Rich Petrone and several members will be observing and drawing this amazing planet for strip chart purposes, to keep track of the planets activities. Anyone interested in joining the team or just for their own pleasure, please come out and take part. The **Summer Solstice** will occur on June 21, 1994 at 14.48 UT.

Mercury - is visible early in the month in the low west-northwest sky just after sunset. It will be invisible later in the month and will move to the predawn skies for July.

Venus - is well placed for evening viewing. It is increasing in brightness as it approaches the Earth and will stand about 25° above the western horizon.

Mars - is in Aries, and rises about two hours before the Sun. Features will be very difficult through telescopes.

Jupiter - in Virgo is approaching the

meridian at sunset. and sets after midnight. **Saturn** - in Aquarius rises about midnight, and is in the southern sky at sunrise.

Now for the best news of the month. **Mountsberg Dam Conservation Area**, located in Campbellville just south of the 401, is now the official observing site for HAA members. It has a wonderful open sky, huge parking lot, outhouses and they cut the grass. Bob Botts, Ann Tekatch and myself went to check it out one night, and we met the Conservation Game Wardens. They have no objections to allowing us to observe from here. Aren't they great! The skies are darker than we're accustomed to. What more could we ask for? Bob came across the park accidentally in his travels and it has turned out to be very fortuitous for all of us. Hats off to Bob! There are only three minor drawbacks. 1: Mohawk Raceway has lights in the north (however, they're not terribly offensive and are off by 11.30/midnight). 2: It is a public park with no gate and therefore the public may wander in, particularly fishermen (a chance for public education). 3: The odd train comes rolling through (if you're planning photography). The park is centrally located for Hamilton/outward and Burlington/outward areas and is not difficult to find. Whatever your approach to Campbellville, get to the intersection of Centre Road and Campbellville Rd. Head north on Centre and follow the Conservation Signs. (Two right turns) Please do not hesitate to call Ann Tekatch-575-5433, Bob Botts-522-9644, or myself for directions.

Observing Dates from The Beamsville Kinsmen Park will be changed to the Mountsberg Dam Conservation Area in Campbellville. See you there and enjoy the dark open skies. Arrive at dusk on **June 11 / July 9 /**

August 12/13. Call ahead if you'd like to be sure someone will be there. I'll be carrying a cellular phone for emergencies and contact calls. Please call my home first.

"Wish Upon A Star"

Ev Butterworth, Observing Director, 632-0163 Cellular # - 416-802-3749.

Jupiter Observing Workshop

On Saturday night of April 9 at 8:00 at the Hamilton Centre's observatory various members of the Hamilton Amateur Astronomers and some planetary enthusiasts from the Hamilton Centre, R.A.S.C. were privileged to attend one of the best observing and data-gathering workshops ever. The whole presentation was orchestrated and presented by HAA member, Richard Petrone, and his friend and colleague, Bruce Collier.

The evening began with a basic discussion of Jupiter's physical and atmospheric construction. The fact that it is almost another star was emphasized strongly. The dynamics of the rotational atmospheric flow, their attendant Coriolis forces and the equator-to-pole-to-equator gas flows were also explained in detail. This part of the program ended with an explanation of the Great Red Spot and the complexity of the atmospheric bands as "...having ten jet-streams all going in different directions..."

The participants were then given a Jupiter Report form and asked to sketch a photographic image of the planet, projected onto the observatory screen. As they sketched, special effects were added to imitate the terrestrial atmospheric blurring and clearing, so that this could copycat a real observing situation. This was followed with an analysis of the images produced and a discussion of the equipment needed.

All of this was leading to a request for observational images over the next few months, as there are to be multiple collisions of Comet Shoemaker-Levi and Jupiter's atmosphere in July. Bruce and Richard want to compare images done before and after the collision, along with photometric observations of Jupiter's atmosphere.

This promising venture should yield some very interesting results. The more observers there are, the more accurate the data will be. If you would like to be a part of this most worthwhile project, photocopy the "Jupiter Log", included with your Event Horizon, and get drawing. Please forward all observations to Charles Baetsen or Richard Petrone (See elsewhere in the newsletter for further details.)

Mike Jefferson

"Parfocalizing" Your Eyepieces

OR: How to make them all focus in the same place.

After a 30 year absence, I recently rediscovered amateur astronomy. I also made a giant technological leap from a homemade 6" Newtonian, including homemade tube and mount, to a brand-new computerized 8" SCT.

I had several eyepieces, none of which focused in the same place. I have also rediscovered a law of nature which states, "When switching eyepieces, you

always start adjusting the focus in the wrong direction!" The process is frustrating and annoying.

During one evening's viewing session, the solution to the problem came to me. You may find it useful, too. Each eyepiece is harmlessly modified with a sleeve of plastic placed around its barrel.

The first step is to find out which eyepieces need modifying. The whole process should be carried out focusing on a distant, daytime, terrestrial object.

1. Place the first eyepiece in the holder, seat it down as far as it will normally go and focus on your chosen object.

2. Place the second eyepiece in the holder and without adjusting the focusing knob, slowly pull the eyepiece back checking to see if it will focus. If it can focus further out than the first one, simply set it aside for now. If it won't focus, leave it fully seated in the holder and refocus on your object.

3. Repeat this procedure with eyepieces 3, 4, etc. You will eventually have one eyepiece left in the holder focusing closer to the primary optics of your scope than any of the others. It will

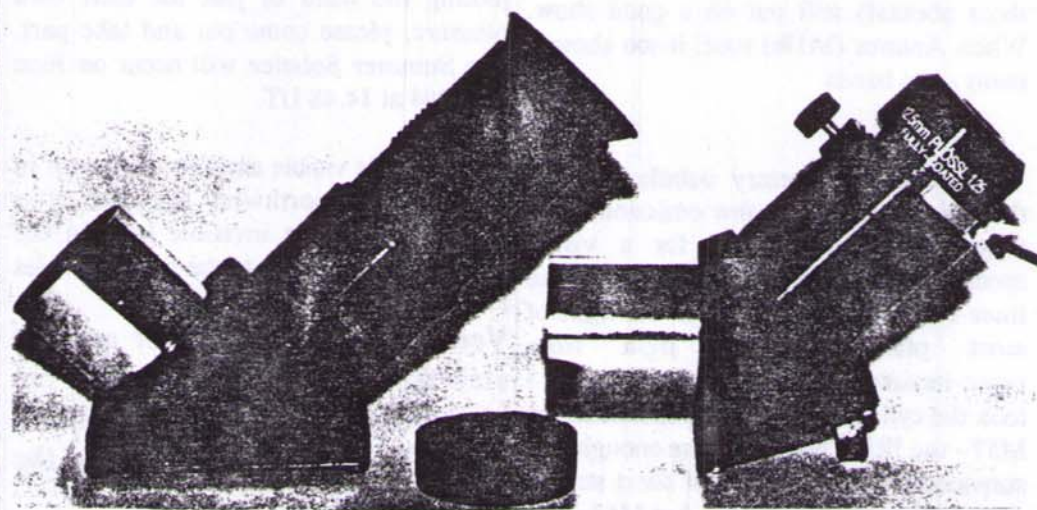


Photo #1: Both eyepieces are in focus. On the left is the closest focusing eyepiece. On the right, the arrow shows the width of the spacer needed to put the eyepiece in focus when placed in the holder. In between is the 1.25" protective cap used to make the spacer for the eyepiece.

not need any modifying.

The second step is to determine how much each of the other eyepieces has to be positioned out from the holder in order to be in focus.

1. With your "closest focusing eyepiece" in place, focus and do not adjust again.

2. Taking each of the other eyepieces in turn, slowly pull them back until you get a sharp focus. If you can now lock them in this position, the next operation will be easier.

3. Measure the distance that the seat of the eyepiece is out from the holder. If you have several to do, a little chart at the scope will help to keep the numbers straight.

You now have to make a spacer form each eyepiece to hold it out the measured distance from the holder. I found that the protective caps that cover the barrel end were perfect. A squarely

sawed-off dowel or broomstick held in a vice helped in both the marking and cutting of the spacers.

A compass for drawing circles is used for marking a line at the correct distance all around the edge of the cap. Hold the cap over the end of the dowel, secure the compass in the wood at the correct distance and carefully rotate the cap until it is marked all around its perimeter.

Use the same dowel to support the cap as you cut the spacer off with a sharp tile knife. Slip the spacer over the barrel of the eyepiece. If it is not snug enough, a small piece of margarine tub plastic slipped underneath should hold it tight.

A word of caution. Make sure that each modified eyepiece has enough of the original barrel left exposed to secure it safely in the holder without falling out. Spend a short time making these spacers for your eyepieces and enjoy more time viewing, less time focusing.

Robert Roy

Events and Announcements

♦ Cosmology Discussion Group

The group has adjourned from the summer. Next meeting will be held in September. The topic: "The holey universe: black holes, white holes, worm holes"

♦ General Meeting

There will be no General Meetings in either July or August. September's General Meeting will be on Friday the 9th.

♦ HAA 1st Annual Summer Star Party

Join your fellow members for a weekend of observing under the incredible dark skies of Silent Lake Provincial Park, 80 kms. north of Peterborough on Highway 28!

Silent Lake offers full camping facilities in a beautiful setting. The park management has agreed to let us use the open spaces of the picnic area at night for setting up telescopes and observing. Camping sites are available elsewhere throughout the park.

Reservations for the July 9-10th. weekend must be made early. The camping fee is \$13.75 per night. You can call Silent Lake and make reservations using a major credit card as a guarantee. The phone number for registration is (613) 339-2807. Hope to see you all there!

Ann Tekatch
575-5433 (evenings)
527-9153 (days)

♦ Event Horizon Deadline

August 14, One week after Starfest. So have your stories ready, and in print.

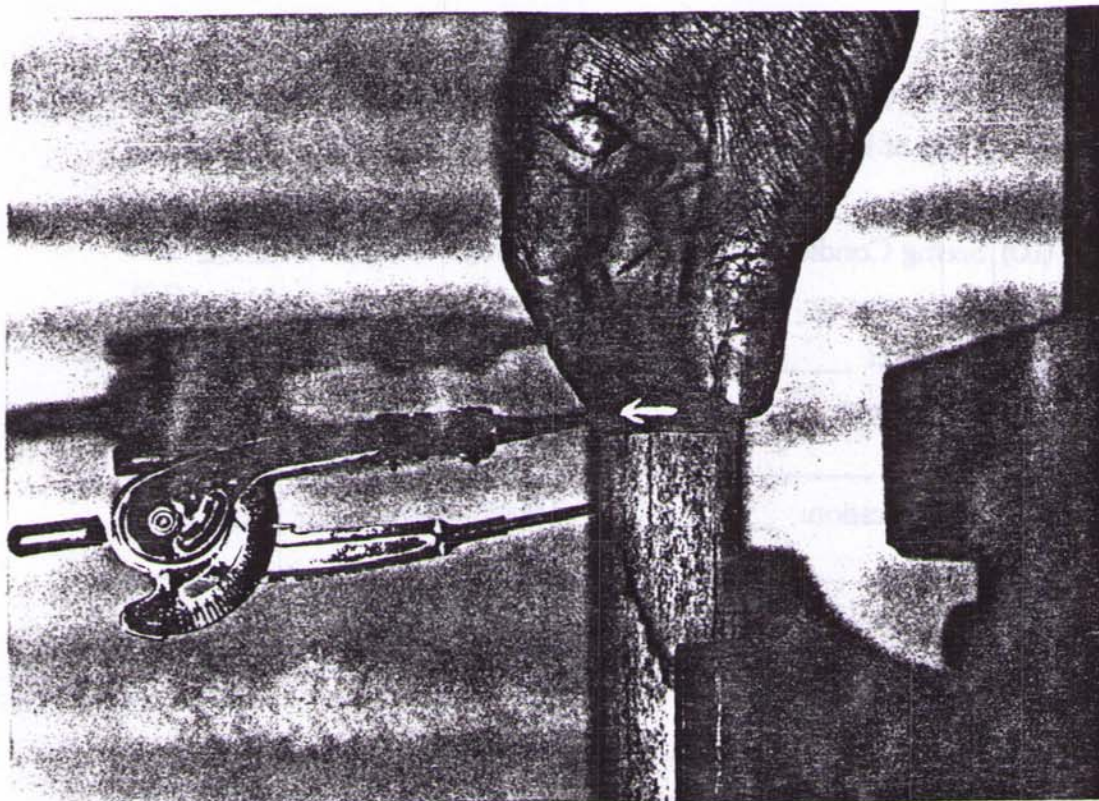
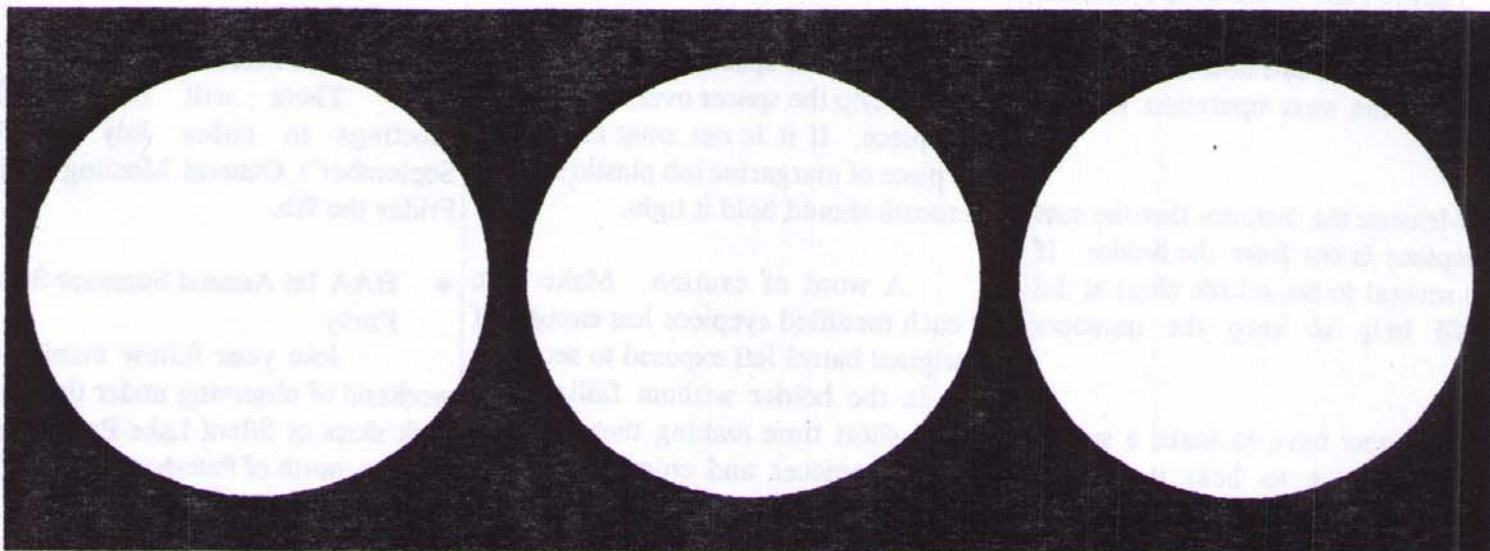


Photo #2: Marking the protective cap for cutting. Use the same dowel for support when cutting the cap.

JUPITER LOG:

NAME: _____ DATE: _____ LOCATION: _____

START TIME: _____ END TIME: _____ TIME ZONE: _____



Drawing Number: _____	Drawing Number: _____	Drawing Number: _____
Time of Drawing: _____	Time of Drawing: _____	Time of Drawing: _____
to: _____	to: _____	to: _____
Seeing Conditions: _____ (10)	Seeing Conditions: _____ (10)	Seeing Conditions: _____ (10)
Transparency: _____ (10)	Transparency: _____ (10)	Transparency: _____ (10)
Eyepiece: _____	Eyepiece: _____	Eyepiece: _____
Instrument: _____	Instrument: _____	Instrument: _____
f-Ratio: _____	f-Ratio: _____	f-Ratio: _____
Magnification: _____	Magnification: _____	Magnification: _____
Filters: _____	Filters: _____	Filters: _____
Calculated longitude of Central Meridian: _____	Calculated longitude of Central Meridian: _____	Calculated longitude of Central Meridian: _____
NOTES: _____	NOTES: _____	NOTES: _____
_____	_____	_____
_____	_____	_____