

THE SPECTRUM

Volume 1, Issue 4

March / April 1999



INSIDE THIS ISSUE:

Ancient Constellations page 3

Meetings Notices page 3

What are all those oddball object names page 4

Spy and Tell page 5

BAA Annals page 6

Observatory News page 7

The Mad Hatter Matter page 8

Southern Constellations visible from Western NY page 8

Celestron Demo Day page 10

Items For Sale page 10

President's Message page 1

Chance or Design page 1

PRESIDENT'S MESSAGE

SPECIAL MEETING NIGHTS

As you know from the last Spectrum, we are having some nights available for you, the members (old or new) to give us some input. These nights are in addition to our regular meeting night.

Why did you join the club? What do (did) you expect to get out of it? Would you like us to add something to a meeting? Take something away? Should we have a meeting now and then where we have no speaker, but could get to mingle and talk to one another to exchange ideas? Are you not satisfied with the B.A.A. as it is? What would you have us do differently?

This is your chance to voice your opinion. If you do not come, we will assume you like things as they are. (That's ok too). Anything goes.

DATES

March 16, 18, 19

Place: Bullfeathers: 1010 Elmwood Avenue
(between Potomac and Bird—just south
of Buff. State) 835-3892

Time 7:00P.M.

You don't have to eat or drink there (both will be available) We will be in either the upstairs or rear room. You cant say we didn't try, its up to you. Cant make it? Call me— 876-4301

E-Mail: genewit@localnet.com

Send letter: 29 Delham Avenue

Buffalo, New York 14216

JUST GIVE US YOUR INPUT

Gene Witkowski

Chance or Design ?

By Leslie Martin

Mystics often seek numerical relationships that suggest occult forces may be at work. If so, our solar system provides some entertainment for those who are inclined in this direction. While some of these peculiarities may be no more than numerical coincidences, occult or otherwise, at least for some the occult force may be none other than the all pervasive force of gravity. Nonetheless, let's look at some of the odd relationships evident in the sun's family of planets.

Here's a peculiar relationship many of us are familiar with: it's the Titius-Bode law for the distance of the planets from the sun. Back in the middle of the eighteenth century Titius and, later, Bode

Cont. page 2 Chance or Design

Officers

Gene Witkowski— President
phone 876-4301

Bob Hughes— Vice President
phone 833-2407

Steve Kramer— Secretary
phone 634-7694

Bev Orzechowski— Treasurer
phone 839-9109

Board Members at Large

Joe Orzechowski, phone 839-9109

Bob Titran, phone 774-2742

Bill Smith, phone 664-0841

Rowland Rupp, phone 839-1842

Tim McIntyre, phone 668-8322

Museum Representative

Dr. Jack Mack — phone 632-6210

Observatory Directors

Neil Dennis — phone 322-7596

Open Position

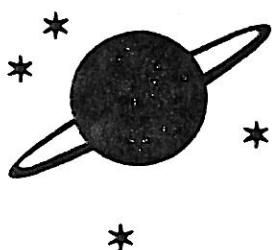
Membership Director

Joe Orzechowski—phone 839-9109

Spectrum Staff

Tim McIntyre — Editor

Bud & Ella Abate — circulation
phone 773-2398



Chance or Design cont.

discovered a numerical sequence that corresponded to the distances of the planets from the sun in astronomical units. Start with zero, the next number is three, then double each number thereafter. Next add four to each number and divide by ten. The numerical sequence obtained is: 0.4, 0.7, 1.0, 1.6, 2.8, 5.2, 10.0, etc. Compare this to the distance of the planets, then known, in AU and one gets an almost exact fit. Saturn was the outer-most planet at that time at a distance of 9.5 AU—pretty close.

There were two problems. One was—where was the planet whose distance was supposed to be 2.8 AU? This extensive region between the orbits of Mars and Jupiter was conspicuously empty. The second problem was—why does it work?

The sequence received a mighty boost when, in 1781, Uranus was discovered at a distance of 19.2 AU. According to the Titius-Bode law, a planet should orbit at 19.6 AU, and here it was! So strong was the conviction that there had to be something to the law that a group of German astronomers organized an extended search for the missing planet at 2.8 AU. Sure enough, it was found on the first day of the nineteenth century, January 1, 1801. To the dismay (I imagine) of the German astronomers, the new planet, subsequently dubbed Ceres, was discovered by an Italian astronomer, Giuseppe Piazzi. Its distance from the sun was 2.77 AU, just as predicted. A confirmed prediction lends credence to any scientific theory.

After that things went downhill. First of all, Ceres was so tiny, much smaller than the moon, it hardly deserved to be called a planet. Then, a year later, Heinrich Olbers discovered another, even smaller body, Pallas, orbiting at the same distance. Then more, and still more, of these miniature worlds were found lying in a belt between Mars and Jupiter—the asteroid belt. The belt is spread out, it's just that the first two objects discovered happen to orbit near the magical 2.8 AU distance. A theory was proposed that these planetoids were the fragments of a planet that really did form at 2.8 AU, but somehow shattered. Even so, if all the asteroids are combined, one still has an object smaller than our moon, an object too small to have really been a planet.

Worse yet, when Neptune was discovered in 1846 at 30.1 AU it was a poor match for the Titius-Bode planet that should appear at 38.8 AU. So it looks like the answer to the second question may well be that the law is just a numerical sequence that happens to have correlated with reality up to a point. Nonetheless, if one argues that the asteroids are really debris from a planet that was unable to form in this region because of gravitational perturbations caused by Jupiter, then it appears the law holds up pretty well, Neptune notwithstanding.

Another peculiar coincidence was discovered more recently. Venus' period of revolution could only be guessed at until the early 1960s, when radar contact was established with the planet. Doppler frequency shifts now allow astronomers to conclude that Venus completes one rotation in 243.01 Earth days—but it rotates backwards. On the other hand, we have long known that Venus revolves around the sun in about 225 days. According to recent literature this period is more exactly 224.68 days.

If one works out the synodic period of Venus with respect to the Earth, one finds that the two planets will repeat alignments on an average of every 583.77 days. In other words, if Venus is at inferior conjunction (directly between us and the sun) today, it will repeat that relationship 583.77 days in the future.

Now what's odd about this is that in 583.77 days the Earth will have advanced 575.51 degrees in its orbit. (Earth advances, on average, 360/365.26 degrees per day.) Since there are 360 degrees in a circle, one can subtract 360 from the 575.51 and wind up with Earth's position advanced by 215.51 degrees since the last inferior conjunction (opposition from the viewpoint of an observer on Venus). While this is going on Venus has rotated through -864.81 degrees. (The negative sign appears because Venus rotates backwards.) To find out how much Venus has rotated with respect to the stars, add three times 360 degrees to obtain +215.19 degrees. This correlation between 215.51 degrees for the advance in Earth's orbital position and 215.19 degrees for the angle of rotation for Venus means that at each inferior conjunction VENUS PRESENTS THE SAME FACE TOWARD THE EARTH. (Well, almost.) To put it another way, only the observers on one hemisphere of Venus would ever enjoy seeing Earth at opposition.

Here's another curious discovery, also made thanks to radar. We didn't know how long it took Mercury to rotate either, until we made radar contact with the planet in the mid 1960s. At the end of the eighteenth century Mercury's period of rotation was thought to be about 24 hours. Early in this century it was believed that the period was 87.969 days, exactly the same as the planet's period of revolution around the sun. If so, Mercury would always present the same face toward the sun, just as the moon does toward Earth.

With radar, we have subsequently learned that the planet rotates in 58.646 days. If one multiplies 87.969 by 2, and 58.646 by 3, one gets the same number. So, while Mercury doesn't present the same face toward the sun all the time, MERCURY PRESENTS THE SAME FACE TOWARD THE SUN EVERY SECOND MERCURIAN YEAR. It rotates exactly three times in two revolutions! These latter two peculiarities may well have a physical explanation. It's the same tidal effect caused by gravity that has brought the moon's

Chance or Design cont. next page

MEETINGS CANCELLATION POLICY

If, for any reason, (most likely snow or ice storms), there might be cause for cancellation of the meetings of the B.A.A., tune your radio to either WBEN (930) or WGR (550). Also if Buffalo State College has been closed due to inclement weather, so will the meeting of the B.A.A. be cancelled.

BEAVER MEADOW TELEPHONE

The telephone at Beaver Meadow, 716-457-3104, is for emergency use only at no cost. Local calls may be placed for a small charge - see the

collection box by the phone. This phone cannot make long distance calls.

REPRODUCTION NOTICE

"The SPECTRUM" is the official newsletter of the Buffalo Astronomical Association, Inc. Permission is hereby granted to any non-profit astronomical society, to reprint, in whole or in part, any article in this, or any other issue of "The SPECTRUM", provided credit is due this newsletter, the Buffalo Astronomical Association, Inc., date of issue and author of said article.

Chance or Design

rotation and revolution into synchronization; gravity almost certainly has coupled the period of Mercury's rotation and revolution into a 3:2 synchronization. Maybe gravity has somehow coupled the revolution of Venus to its synodic period with Earth. At least Peter Goldreich suggested so a couple of decades ago, and the possibility is still being considered. It's not difficult to imagine how the sun's powerful gravity might influence Mercury's rotation, or how the nearby Earth slowed the moon's rotation, but it's a lot harder to see how Earth's feeble gravity could do the same for the vastly more distant and massive Venus. Of course, four billion years is a long time to tweak a planet. Perhaps persistence pays off.

Finally, there's one more solar system peculiarity, less well known than the previous ones, where gravity may again be to blame. Consider the sidereal revolution of the three inner Galilean moons of Jupiter. Io circles Jupiter in 1.769 Earth days, Europa in 3.551 days and Ganymede in 7.155 days. Take their reciprocals, which really is a measure of what portion of their orbit, on average, each of these satellites travels in a given period of time, in this case, one Earth day. These reciprocals, to the same accuracy as given for their periods, four places, are 0.5653, 0.2816 and 0.1398, respectively.

Double the reciprocal for Ganymede (0.2795 if one doubles the fraction 1/7.155), add it to the reciprocal for Io and one gets 0.8448. If one triples the reciprocal for Europa one has 0.8448 again. Now that's really odd. Evidently some subtle gravitational influence is at work here or, if not, a truly eerie coincidence of numbers has occurred.

If our solar system has produced these quaint phenomena, and there probably are more, just imagine all the strange numerical relationships that await us if we ever explore other planetary systems. Will we find another form of the Titius-Bode law elsewhere, or find odd orbital resonances, real or imaginary, between other planets and their moons, and with each other? We shall see.



ANCIENT CONSTELLATIONS

by Darwin Christy

CHARA & ASTERION

Asterion is the northern dog and Chara is the southern dog. Only the most artistically minded, will probably try to imagine the hounds themselves in the patterns depicted in the old detailed charts of Johann Hevelius' "Firmamentum Sobiescianum." It shows them being lead by Bootes.

They are also shown in some beautiful and artistic cards from the "Urania's Mirror" plate "PL-10," which also contains Bootes, Coma Berenices, Canes Venatici and Quadrans Muralis. It treats the two dogs as Canes Venatici which also has another old constellation attached, "Cor Corali." Information according to this booklet, is rather vague and there is not much to go on at all.

GALLUS, the COCK

This ancient constellation is rather confusing, as it seems to have been introduced in two separate areas of the heavens. From earliest times it was an early designation of the Hyades and Pleiades.

As a zodiacal constellation, it was the Cock, or Hen, recalling the modern "Hens & Chickens." When the Jesuits introduced it in their western nomenclature, it became the Golden Ox. This Golden Ox can be found in the Old Testament in Deuteronomy, XXXIII, 17. It is referred to by Joseph as "the horns of the wild ox"; others said of it as only on the banner of Ephraim; or Simeon and Levi jointly thought it a description of a death bed from Jacob. Even to Issachar, the "strong ass" which shared the burdens of toil and carriage with the ox.

Flamsteed had it as represented by 13 stars out of Argo, placed about 20 degrees from there, across Monoceros into Canis Minor. It was also formed by Bartsch as a small asterism behind the back of the Greater Dog, but has since, been long forgotten.

Monthly General Meetings Notices

Meetings held in the New Science Building Aud. at Buff State

FRIDAY MARCH 12 — Annual Dinner Meeting

This year's dinner meeting is being held at John's Flaming Hearth Restaurant, 1965 Military Rd., Niagara Falls, NY. Beverages and bar open at 6pm with the gala sit down dinner at 7pm. The guest speaker is Phillip Evans, who will be speaking on Astronomy in the Newspapers—150 Year Perspective.

FRIDAY APRIL 9 — WHERE DID ALL THE WATER COME FROM? 7:30 PM

Lecture given by Doug Love on how all the water came to be on earth.

What are all those oddball object names!?!

By Bill Smith

Objects are collected into lists by various discoverers, authors and compilers. Generally it's first come, first served or when you make a big honkin' all-encompassing catalogue then you seem to jump to the head of the pack.

A concise listing of authors, compilers and catalogues (at least for us amateurs) is in *Touring the Universe through Binoculars* by Harrington, pg 83. A bigger list is in the references to the Uranometria atlas.

Did you know there were catalogues of sky objects before Messier?

The major naked eye (pre-telescopic catalogues) were those of **Hipparchus [150 BC]**, comprised of 2 objects (Beehive and Perseus Double Cluster); **Almagest [2nd Cen AD]** by Ptolemy; **Al Sufi [964 AD]**, **Ulugh Begh [1437]**; **Tycho Brahe [1601]** and **Bayer [1603]** of Uranometria star atlas fame.

There were early telescopic catalogues by: **Hodierna [1653]**, **Kirch [1682]**, **Hevelius [1690]**, **Halley [1715]**, **De Cheseaux [1745]** and **Lacaille [1752]**.

The question is: what do you remember of these and where did they go? The history of these catalogues would make an interesting article(s). They were superseded by bigger catalogues and succumbed to the maxim at the top of this article: "When you make a big honkin' all-encompassing catalogue then you seem to jump to the head of the pack". Thus the catalogues of **Messier [1774]**, **New General Catalogue of Nebulae and Star Clusters (NGC) [1888]**, and the **Index Catalogue (IC) [1895, 1908]** have taken over. Note that the Herschels own catalog of over 2500 deep-sky objects, **General Catalogue of Nebulae [1864]**, has disappeared and been absorbed into the NGC only 24 years later!

How about newer catalogs such as **Antalova, Berkeley, Dolidze, Haffner, Roslund and Tombaugh** open clusters; **Arp, Palomar and Terzan** globular clusters; **Abell, Markarian, MCG and UGC** galaxies; **P&K** planetary nebulae; **Cederblad, Herbig-Haro, Minkowski, van den Bergh-Waterloo** bright nebulae; and **Barnes, Lynds, and Sandqvist** dark absorption nebulae.

Never or almost never heard of these? Well I have combed through the Uranometria, Sky Catalogue 2000 and Redshift PC planetarium program to find the most observable representatives of 60 different catalogues of deep-sky objects. Many of these lists naturally include objects from earlier catalogues. I tried not to include these repeat objects from earlier catalogues. Many catalogues were compiled by scanning the Palomar Sky Survey schmidt camera plates. That telescope has been recently upgraded and another (deeper) sky survey is currently being conducted. A similar survey is being done in the southern hemisphere by an even bigger Schmidt camera. This will undoubtedly lead to even larger lists but I'm afraid any new objects will be unobservable even in our 20" scope.

CATALOGUE LISTING AVAILABLE

This 8 page listing of catalogues, some details about each one, and a potentially observable representative is available by mail from Bill Smith 1880 Thornton Rd, Cherry Creek, NY 14723 or at the March dinner meeting. This should make for a great observing program for this year. Don't limit yourself to Messiers and a few NGCs!

OBITUARIES

It is with deep sorrow we announce the untimely death of Jane Christy on December 18th. She was the wife of Orrin Christy for 28 years, mother of Michael Christy, and daughter-in-law of Darwin Christy. Born in the City of Tonawanda, she graduated from Tonawanda Senior High School, receiving her bachelor's degree in elementary education from Brockport State College and her master's in education from Buffalo State College.

She taught at Fletcher School, Mullen, and Riverview schools in the City of Tonawanda. Jane was an active member of the Salem United Church of Christ, teaching in the Nursery School from 1989 until her death. She was also a member of the DeGraff Memorial Hospital auxiliary.

Our deepest sympathy goes to Orrin, Michael and Darwin.

We are saddened by the passing of Margaret Rabe, who died on December 25th, after being in poor health for the last few years. She was very active in the BAA in the 60s and 70s, and was a member of the Board of Directors in the mid-60s, and also served as a refreshment hostess over a period of time. She continued to be very involved in the BAA for many years. She was also a highly respected clerk at the former Masten Park High School a number of years ago.

Our condolences to her husband, Arthur; daughter, Linda Barnes, and grandchildren, Andrew and Matthew Barnes.

— Edith Geiger —

Spy and Tell

by Edith Geiger

Henry Goller and his wife enjoyed the week of February 6th, as they vacationed at Saint Martin in the Caribbean.

Congratulations to **Rowland** and **Irene Rupp** who are the proud grandparents of the fine little son born to Anthony and Linda Rupp. Anthony Jr. was born last spring.

On January 12th, **Carl Milazzo** gave a talk on astronomy to the senior class at Orchard Park High School. He also looked at the 8-inch reflector and gave it a tune-up, helped with collimating and balancing the scope and gave tips on cleaning.

During '98, Carl had 9 photos which appeared in SKY & TELESCOPE.

Retiree, **Norbert Beiter**, has many hobbies, from fishing and hunting wild turkeys to putting model airplanes together, a hobby he has enjoyed since grade school. He has been a philatelist for over 30 years, and now as a former fireman he has been collecting stamps showing pictures of fire engines. He is also a collector of baseball cards, the White Sox and the Chicago Bears. With the abundance of snow and inclement weather, he put his spare time to good use in his basement cleaning up his work bench.

Carl Kalweit, a former active BAA member, has been undergoing treatment for a stomach tumor for the last 3 years, and it is now under control. He lives in the Commons in Kenmore, and goes on tours with groups to various sites.

After Christmas, **Bob Titran** was interviewed by Radio Station WBFO regarding the international space station that was to be visible from Buffalo directly overhead on NEW YEARS EVE. Unfortunately, our weather didn't make viewing possible.

Doreen Panzarella, one of our newer members, reports that she has a friend with a Natural Resources Degree in Wasilla, Alaska, and he has informed her recently of great northern lights displays seen near Wasilla, and that the red aurora, considered rare, has been seen on a few occasions. In January, a meteorite entered the Earth's atmosphere near Wasilla, with many witnessing the light and hearing the explosion.

Doreen supports the SPCA, and will be adopting a new pet soon as her 18 year old feline recently passed away.

Steve Kramer is rebelling against Bill Gates, and has had enough mysterious pictures, kindergarten words and rabid mice. He is reinstating his 12 year old programs on his new computer.

MINUTES OF BAA BOARD MEETING - DEC. 7, 1998 at Jack Mack's

Attendance:

Present: Gene Witowski (P), Bob Hughes (VP), Steve Kramer (Sec), Bev Orzechowski (Treas), Jack Mack, Bob Titran, Bill Smith, Tim McIntyre; Bud Abate, Dan Marcus - as members.

Not Present: Rowland Rupp, Joe Orzechowski, Neil Dennis, Bill Aquino

March Dinner Meeting - Bud Abate arranging. Three choices: Holiday Inn, Grand Island; Warren's Steak, Tonawanda; and John's Flaming Hearth, Niagara Falls, which appears to be the best choice for location and menu - meals would cost \$14 to \$18.50 + T&G.

Speaker arranged is Phillip Evans who will speak on "Astronomy in the Headlines" or alternatively "UFO's and You."

Treasurer:

BO distributed copies of the treasurer's statement for Sep. thru Nov. showing a balance of \$8462.07.

Buffalo Fdn. grant application: reviewed progress; need three things: present the 501-c3 status, the president's signature, and to arrange the audit statement.

Observatory:

GW expressed the need for a new observatory director and noted that Anthony Davoli has said he might do it later. For now we need helper (s) in three areas of education, equipment, and repair - perhaps the staff or volunteers, though there is the usual problem of getting people. DM and TM could start for the spring.

ND would like two 12mm and two 24 mm eyepieces, costing about \$200.

We should have a current inventory of eyepieces.

Continued page 6 'minutes'

SPECTRUM DEADLINE

The deadline for the **May / June** issue is

May 10 NO EXCEPTIONS

Send all submissions to Tim McIntyre

157 Dartwood Dr. Cheektowaga, NY 14227

E-Mail TMcint9320@aol.com Phone: 668-8322

Preferred format is typed or PC readable WordPerfect for DOS 5.1 or earlier, MS Word for DOS Scanning available

BAA ANNALS by Rowland Rupp

5 YEARS AGO - Fred Price spoke on the history of the Royal Greenwich Observatory at our March dinner meeting, held at Jim-ricky's Bar and Bistro in the Northtown Plaza. In April we heard from Marilou Bebak on solar flares and the capabilities of the Buffalo Museum of Science's solar instruments. Also speaking in April were Steve Kramer on his research into the Antikythera instrument, and Dan Marcus on viewing the coming solar eclipse.

The publication of Fred Price's latest book, The Planet observer's Handbook was announced in the SPECTRUM. Two book reviews also appeared. One, by Tom Bemus, was Discover the Stars by Richard Berry; the other review was written by Darwin Christy on Paul G. Hewitt's Conceptional Physics. THE SPECTRUM also had an article by Leslie Martin entitled "Catastrophe" that reviewed theories held early in this century asserting the planets were formed from an encounter between the sun and a passing star. Bob Titran contributed the lone observation report. According to "Spy and Tell", Gene Witkowski had passed the 17 gallon mark in blood donation, and Bill Halbert was studying voice under Giorgio Tozzi at Indiana University

10 YEARS AGO - Our speaker for March 1989 was once again, Fred Price. Fred's topic was "The 1988 Apparition of Mars". Mars was also the topic in April, when Herbert W. Tinney spoke about the "face" on Mars.

A repeat of a member profile written by Edith Geiger in 1967 on Walter Semerau was featured in the SPECTRUM. There also was a report on Kellogg Observatory by Marilou Bebak announcing the renovation of the 8-inch refractor that has introduced the night sky to so many Buffalonians over the decades. Ed Lindberg's "Instrument Notes" reported on testing the BAA's eight-inch, f/9 unmounted mirror. Apparently it had severe problems including being essentially spherical, having chipped edges and signs of a one inch radial crack. Does anyone know the whereabouts of this mirror now? This issue carried the obituary for Irv Goetz, former member of BAA's Board of Directors.

15 YEARS AGO - Fifteen years ago we held our March and April meetings at the Buffalo Museum of Science where we heard from Rochester's Ken Brown on Halley's Comet and from his fellow Rochestarian, Tom Dey, on "Equipment for Amateur Astronomers". respectively. Ken also contributed a note on the colors of double stars.

"Recurrent Novae" was the title of an article in the SPECTRUM by an unidentified contributor. "Limits on Visual Perceptions" by Michael Idem explored techniques to enhance perception of dim objects. Edith Geiger's member profile featured Marilou Bebak. Observation reports by Michael Idem, Carl Milazzo and Darwin Christy appeared in this SPECTRUM, as did "Instrument Notes by Ed Lindberg and "Observatory Notes" by John Riggs.

25 YEARS AGO - The meeting for March 1974 was held at Kleinhans music hall where members attended an All-Gershwin Night that benefited the Beaver Meadow Observatory project that was then in the planning stage. Dr. David Meisel spoke on "Comets" in April in the familiar confines of the museum. The club scheduled an astrophotography exhibit there for April.

Former member Fred West contributed an article on "Spacecraft Launch Windows", a continuation of the material started in the preceding issue. Ernst Both, SPECTRUM editor then, gave an ephemeris for Comet Bradfield, which was to pass perihelion on March 19, 1974 at 47 million miles. Unfortunately, another obituary appeared—Bob Kartyas, our Treasurer, died unexpectedly at age twenty-five.

35 YEARS AGO - "The Dust and Gases of Space" was Raymond Sulwickski's talk in March 1964. A film, "The Universe", produced by David Dunlop Observatory, was shown in April. (For those under forty, film was a celluloid predecessor of video tapes.) Marjorie Meyer replaced Lou Reinagle as Secretary, and name tags for all members were donated by our Vice-President, Edith Geiger.

There were some curious entries in the SPECTRUM in those days. For one, Carl Kalweit reported that the BAA would receive a donation from a waste paper sale if we would volunteer labor to sort and bundle the paper. A change in paying dues was inaugurated. Previously membership ran from the date one first joined, and was renewable on each anniversary thereafter. The new policy put dues on the annual schedule we have now. A "Telescope Tip" dealt with how to avoid dewing of optical components.

Minutes continued from page 5

DM said he would handle the social and educational duties for the observatory.

The 12 inch scope may be fixable with further gear work and be stable enough for five cameras attached.

The Meade LX200 (from J.Timmerman) needs repairs. We will spend a maximum of \$500 for the estimate and repair by Meade.

Membership:

JO announced that Dennis Hohman had offered to help with membership by managing the table and receipts at meetings; JO would maintain records and database.

MEMBERSHIP CORNER

Nothing to publish

Observatory News

SUMMARY OF ATTENDANCE AT BEAVER MEADOW OBSERVATORY DURING 1998:

During the 1998 year the sign-in log showed the following activity related things. A total of over 800 people were present at the observatory at sometime during the year. There were 797 actual sign-ins but some were "family" that I only counted as 1 where there probably were several. A list of the heaviest users shows the following -

Bill Aquino-50, Neil Dennis-46, Frank Chalupka-41, Tim McIntyre-32, Dan Marcus-29, Dennis Hohman-22, Tim Leary-20, and Rick Pason-14.

Several other members were in the 5 to 10 visit category, all other entries were in the 1 to 2 range.

The heaviest (most active) day was July 18th with 99 sign-ins, the second was May 2nd with 70, this was astronomy day. The balance of the total was mostly 4 to 8, mostly members with a few public nights in the 20 to 50 range.

I think it is rather sad that of all the members of the "club" we actually only had eight with over 10 visits (uses). With the availability of good 'scopes and dark skies it makes me wonder what happens with the rest of the members ! I can't believe they all have better conditions or equipment at home. Somehow, the club as a whole should work on improving the usage, we really need to do that to justify the existence (maintenance) of the facility. I hope we can do better in 1999!

— Neil Dennis —

Please Check Your Eyepiece Box

After completing an eyepiece inventory out at Beaver Meadow Observatory we can not seem to locate a couple of items from the BAA storage cases. These items may easily have become mixed up in someone else's eyepiece case during a busy public night. Please take a moment to check and if anything turns-up call Bill Aquino at 731-9366, thanks. The missing items we are looking for include; a RED screw on filter (1.25") the common type that Orion sells, a Lumicon Oxygen III filter (1.25") in a small plastic case, and finally a TeleVue 24mm widefield eyepiece (1.25").

— Bill Aquino —

Fill and Grade around Observatory

We have a tentative agreement with the Audubon Architect (Mr. HalfPenny) to have any leftover soil from the Nature Center expansion project piled-up and graded around the observatory. This is especially needed on the East side where the slope has actually become somewhat of a danger. I expect Mr. HalfPenny to keep his handshake agreement with me and intend to pursue the issue and make sure that he does. This is a no-cost improvement, a good dozer operator can grade excess soil around the observatory as easily as he can push it into the swamp.

Concrete Expansion

With the Nature Center expansion comes a possible opportunity to expand the concrete pad around the observatory. We have discussed this issue last year in some detail and it was decided to form a concrete committee to make a final recommendation to the BAA board. I have a list of who is supposed to be on this committee and intend to round-up these guys and get a reasonable recommendation out of them. We really should be organized and know what we want (in detail) in case this opportunity presents itself.

Loaner Scope Completed

The "Telescope Group" which met prior to each 1998 BMO Public Night has completed their 6" Loaner Scope project. The goal of this project was to create a practical loaner scope for the club which could meet the following design criteria; easy to use, rugged and reliable, repairable, and most importantly be able to fit into the back of a compact car. The completed scope was displayed at the January 1999 meeting and has been put into immediate service by a new member. A heart-felt THANK YOU needs to be extended to the following members for their contributions. Inspiration - Lynn & Wade Sigurdson, Math/Theory - Dan Marcus and Joe Orzechowski, Technical Support - Tim McIntyre and Frank Chalupka, Refinishing/Painting - Bill Aquino, Construction - (by far the hardest part of the project) Tim Leary with help and advice from Neil Dennis. Donations of materials to complete this, no-cost to the club project, came from; Bill Smith, Bill Aquino, Neil Dennis, and especially Tim Leary. The optics (including a hand-made 6" primary mirror) were donated by Conrad Stolarski. A special THANK YOU to Mr. Dean Rochevot (non-member) for donating the computer scanned versions of our new club logo which appear on each side of the optical tube.

— Bill Aquino —

Laser Collimator

The board has allocated \$125 for the telescope construction project. I mentioned several months ago that the members who purchased materials for this project were not going to turn-in receipts, but instead want tile funds to go towards the purchase of a laser collimator tool. We decided to wait until the project was completed and the scope was put into service. Well this is now done so it's time to make a decision. My thoughts on this are; a quality collimation tool is certainly needed, however, it will cost more than \$125, and we possibly have a security problem out at the observatory.

DEEP SOUTHERN CONSTELLATIONS VISIBLE FROM WESTERN NEW YORK

From our latitude, about 75% of the 88 constellations, are visible, including prominent deep southern ones like Scorpius, and Sagittarius. Most amateurs see them every summer quite easily by standing in an area that is free of trees and houses. Some amateurs think that because we are located in the northern hemisphere, that only half of the constellations could be seen. Not so, this is only true as seen from the North or South Pole, where about 44 could be seen. From the Equator, all 88 constellations could be seen.

From our latitude of 43 North, we are able to see stars as deep south as declination 47 degrees on a star chart. This results in 59 constellations being completely above our horizons. In addition, 14 more can be added that are partly above the southern horizon when on the meridian. This gives us a total of 73 visible from our region. This leaves only 14 constellations that can never be seen from here because they never rise above Buffalo's southern horizon.

I know what constellations, stars and deepsky objects can be seen from our latitude from theory, but also from personal experience. In 1972, I was observing the galaxy NGC5253 in the constellation of "Centaurus". That spring evening, I saw a 8th magnitude supernova in that galaxy, and to this day, it's still the brightest I have ever seen. This was seen through our club's 12 inch scope when it was housed in a dome observatory in the township of Newstead. That galaxy was 15 degrees above the southern horizon, and was easily seen. Over the years I wondered how much farther down to the southern horizon I could go and still see the constellations, stars and deepsky objects.

With scopes I have seen the galaxy Centaurus-A (NGC5128) and the globular cluster NGC6541 in Corona Australis. One night I aimed my scope at the Puppis region of winter milkyway. I continued to scan slowly due south on the meridian, and noticed that the number of stars in the eyepiece decreased but didn't disappear. Then suddenly on the edge of the eyepiece field of view, was the meadow, and still over a dozen stars in the background. I felt like I was looking through a ship's porthole, facing the shore.

The following are some constellations that are 100% above W.N.Y. horizons, yet are known by few local amateurs. Microscopium, Pisces-Austrinus, Pyxis and Antilia. Also the second magnitude star Alpha-Phoenix which is one of the stars that makes up the autumn triangle. The 14 constellations that rise partly above our southern horizon are the following: Phoenix, Eridanus, Horologium, Caelum, Pictor, Puppis, Vela, Centaurus, Lupus, Norma, Ara, Telescopium, Indus, and Grus.

By: Carl Milazzo

The Mad Hatter Matter

by Halina Biernacki

What does it matter if there's antimatter?
 Since we don't see the matter, does it really matter
 if we pursue this matter?
 Was it the Mad Hatter who provoked the search for antimatter
 ... or Alice's looking glass matter?
 She passed through the mirror to find nothing's the matter.
 Upon returning she found missing matter.
 The candle was dim but she saw the light
 ... and encountered dark matter.
 As you can see this Mad Hatter matter accelerates
 ... and produces new states of matter.
 Oh, but what does it matter!
 Maybe someday we'll grasp this matter.

Halina Biernacki

Fantasy is the treatment of events that the rational mind considers impossible and highly unlikely. It is the urge to explore the imagination along routes alternative to those followed in reality. Fiction plays with probability and possibility, much like mathematical games.

Math puzzles abound in history. They have been used in trials, intelligence tests, and amusements. Many fields of mathematics began with such puzzles, and many have been inspired by math. In the 17th-century, a problem concerning a gambling game was analyzed by the mathematicians Blaise Pascal and Pierre de Fermat. Their analysis led to the development of probability theory, one of the most useful mathematical fields. Logic puzzles gained popularity in 19th-century England, due in part to the efforts of Charles L. Dodgson (pseudonym Lewis Carroll), a mathematician and contributor to mathematical logic.

Lewis Carroll is best known for his publications *Alice's Adventures in Wonderland* (1865) and its sequel *Through the Looking Glass and*

continued next page

What Alice Found There (1872). He invented a dreamworld where Alice a remarkable self-possessed child encounters a series of adult eccentrics, among which was the Mad Hatter. All his characters indulge in bizarre illogic and utter ineffectual commands, and time seems to be of great importance to the White Rabbit. Carroll has sophisticated fun with the conventions of logic and language.

The wonderful thing about science is that the fantastic often turns into reality. When Lewis Carroll wrote his fictional dreamworld not much was understood about parallel realities or matter and antimatter. Yet, Alice passed effortlessly through a mirror as photons do today with experiments in quantum optics. Although he was not a physicist, Lewis Carroll, almost seems to have anticipated a thorny 20th-century physics problem — that of tunneling time.

What does all this have to do with the price of eggs in China or astronomy? Everything. Astronomy very much involves the study of particle physics, time, energy and matter. Particle physicists regard the universe as the ultimate particle accelerator. They study how the universe came into being. There are several theories, one is that the universe is made up of matter and not antimatter. How can this be, if the universe is considered a particle accelerator? If atoms can be broken in a terrestrial particle accelerator and scientists can catch a glimpse of positrons which is evidence of antimatter, then surely antimatter exists in the universe.

In the 1970's Vera Rubin of Carnegie Institute, led research on the rotation of galaxies. This culminated in the startling but seemingly inescapable conclusion that as much as 90% of the universe must be comprised of matter that has not yet been detected. This matter has been come to be called missing mass or dark matter, but conceivably it may not be so much dark as transparent, neither shining or casting a shadow and signaling its presence only by its gravitational pull on other matter and energy. Numerous theories continue emerging to predict the nature of dark matter.

On the vast energy, distance and time scales that interest cosmologists, gravity rules above all other forces. Therefore, cosmology is very much the study of gravity and its interaction with energy and matter. Another theory is that energy and matter are different manifestations of the same phenomenon and can be transformed into each other in terms of the relationship. Stars, for example, are enormous furnaces for converting matter into energy, $E=mc^2$. Einstein's theory of general relativity provided a powerful new way to view gravity as a warping of the four-dimensional space-time continuum by the presence of matter.

If space-time is imagined as a rubber sheet, then massive objects such as stars and galaxies create deformations in space-time, just as a bowling ball sitting on a mattress creates a dent into which nearby smaller objects fall. Thus the shape of space-time determines the behavior of matter/energy. At the same time, the presence of matter/energy determines the shape of space-time.

It helps to have imagination and a childlike nonsense view of the world for travel into dimensions not fully understood.

Time was a factor
the White Rabbit met with laughter
As the Mad Hatter uttered to the Queen
It's time to cut the scene.

Halina Biernacki

CHANGE IN THE BAA BYLAWS

At the February 12th meeting, the membership that was present passed a change in the club's bylaws which changes the observatory directors discretionary fund from \$ 50 to \$ 100. Article 5 Beaver Meadow Section 2 is changed from \$50 to \$ 100.

Astronomical Happenings—TIME WELL SPENT IN ASTRONOMY

Volunteer needed to make a calendar of astronomical events for the upcoming year. Anyone with one of the many computer programs on astronomy can easily come up with a nice calendar for this newsletter along with public event handouts. Contact your editor.

BEAVER MEADOW OBSERVATORY

The observatory is open to "checked out" members any time. Call Neil Dennis (322-7596) to get checked out. Public nights are held on the 1st and 3rd Saturday nights April through October. There is "members only" viewing after every public night. Help is always needed and appreciated for our public events. You don't need a lot of experience to help out. Stop by and be an "observer" and see just how easy it is. The "vets" will show you how.

FOR SALE!!!!

Meade 10" Dobsonian with accessories.
Too many upgrades and accessories to list.

Over \$1000.00 invested, asking \$750.00. Call for more information.

Jeff Gardner 639-0866

Collectible Photographic Jigsaw Puzzle:
1969 cover – Astronauts of Apollo 77:
"First on the Moon" Never opened –
Excellent Condition: \$30.00

Book: 1953: The Flying Saucers Have Landed by George Adamski & Diamond Leslie – British Book Centre, Inc.
Original – asking \$65.00

Doreen Panzarella 877-5611

CLUB T-- SHIRTS SWEATSHIRTS FOR SALE !!!

That's Right, you could be the proud owner of one of these T-shirts for \$ 15.00 . These 50/50 cotton blend shirts are black and contain the same logo that's on the front page of the Spectrum. The club also has sweatshirts with embroidered logo available in black or navy blue. The sweatshirts require a \$ 5.00 deposit and cost \$ 30.00 each. Help support and promote the Club with a touch of class.

Contact Gene Witkowski for more info.

CELESTRON TELESCOPE DEMO DAY

Continental Camera located at 5795 Transit Rd. , Depew , NY will have their Celestron Telescope Representative on hand to answer anybody's questions on the Celestron line of telescopes. The date is March 25th and will have scopes set up outside weather permitting.

Contact Brian at 681-8038 or visit their web sight :

www.continentalcamera.com

NEWSLETTER OF THE BUFFALO ASTRONOMICAL ASSOCIATION INC.

Tim McIntyre
157 Dartwood Dr.
Cheektowaga, NY 14227

Phone: 716-668-8322
Email: TMcint9320@aol.com

THE SPECTRUM

Web master ~ Mark Reville

We're on the Web
www.webt.com/mreville/indexbaa.html



HOWLAND RUFF
C/O ARCHIVES
100 BROADWAY
NEW YORK, NY 10005