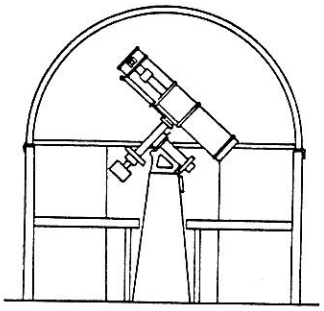
THE SPECTRUM

elg



BUFFALO ASTRONOMICAL ASSOCIATION, Inc.

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Rowland Rupp, Vice President
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MEETING NOTICES

FRIDAY, MARCH 9, 1990 at 7:30 PM in the New Science Building Auditorium, Buffalo State College.

This months speaker will be BAA member, David Quagliana on the subject, "Analemma's". This will be a short talk, followed by a planetarium show in the Buffalo State College Planetarium. Refreshments will follow-----

FRIDAY, APRIL 13, 1990 at 7:30 PM, again in the New Science Building Auditorium, "The History of the World Greenwich Observatory" will be the topic of this months speaker, Dr. Fred Price, Professor of Cell Biology and Bi Bio-Chemistry at Buffalo State College, and a long time member of the BAA. Refrshments will follow.....

NFCAAA

The Niagara Frontire Council of Amateur Astronomy Associations will hold their Spring Meeting at St. John Fisher College, Rochester, NY on May 5, 1990, a Saturday. Afternoon papers, a dinner and an afterdinner program. For more information, check the next issure of the "Spectrum."

It is with great sorrow that we announce the passing of Hugh Pettit on December 30, 1989. He was an enthusiastic member of the BAA and was always willing to serve wherever possible. A most pleasant gentleman, he had many friends. His ready smile, warmth, and sincerity will be long remembered.

We extend our heartfelt sympathy to the members of his family.

elg

PRESIDENT'S CORNER

At the January meeting, BAA member, Bruce Newman, donated to our club, charts of the Messier Catalog and a list of the Annual Meteor Showers. Both these items may be purchased for a $1.00 donation to benefit the BAA. Thanks Bruce for your time and help in supporting our organization.

Due to an increase in costs, the annual dues will be increased in September. This issue was discussed and voted on at the January meeting of the Board of Directors. The increase will be effective starting Sep ember 1, 1990 as follows: Individual $15.00; Family $20.00; Senior and Student $10.00 and Spectrum Subscription $7.00

The May Dinner meeting will be held at the Lord Amherst Hotel Restaurant. There will be a cash bar from 7:00 PM. A buffet dinner will be at 7:30 PM. Price $12.00 per person. Tickets must be purchased in advance by May 4, 1990. NO TICKETS WILL BE SOLD AT THE DOOR. Our guest speaker for this meeting will be Mr. Ernst Both, Director of the Buffalo Museum of Science.

Election time is soon approaching. This June an election for the offices of President, Vice President, Secretary and Treasurer will he held on the last meeting for this season. A volunteer is needed to head the nominating commitee to recruit candidates for these offices.

There will be a Board Meeting on March 6, 1990 at 7:30 PM at the home of Dr. Fred Price.

Doris Koestler

The BEAVER MEADOW OBSERVATORY

Continued from the January-February 1990 "SPECTRUM":-----

Bob Meyer designed a unique custom mount for the 4 3/8" F 10 Jaegers Achromat guide scope utilizing a front gimble and a rear locking micrometer adjusting saddle which allows for very good control while guiding under high power. Bill Deazley and Darwin Christy joined to solve a problem with the output transformer by building a new improved one, and Bill used his electronic skills in designing and building a new variable speed drive for the right ascension motor.

from the preliminary plans presented in March and April 1973, until actual construction began in June 1975. Changes in design resulted mainly from financial constraints. The concept presented originally by the BAA Design Committee was for a building with a heating room and a rotating dome. The dome was to be professionally built and purchased and the building was to be built by BAA club members. However, investigating the purchase of such a dome revealed both very high cost and an indeterminate waiting period for delivery.

Original estimates for the observatory ranged from around $4,000 up to $10,000 and more and such a dome could drive costs beyond that range, but the committee felt that the combined fund raising powers of the BAA and the BAS would be adequate to cover the extra costs for both a heating room and a commercial dome.

A tentative legal agreement outlining a cooperative fund raising effort, and the official relationship between the Buffalo Astronomical Association and the Buffalo Audubon Society, for the Beaver Meadow project, was drawn up and accepted by the membership in March, 1973. The BAS would own the land and the building, and the BAA the telescope and equipment. The observatory would be operated by BAA members and available for their exclusive use provided public access was allowed and astronomy programs would be available for the benefit of BAS members and general visitors to the nature center.

Donations to the new observatory fund were solicited from BAA members and various corporations and many fund raising efforts were initiated and carried out both independently and jointly with the BAS. After the BAA had been incorporated and obtained tax exempt status, thanks to the efforts of Bill Deazley's wife Elaine, a $1,000 grant was received from the Buffalo Foundation.

A horse show, held at Camp Sprucelands owned by long time BAA member and supporter Octavia Black, netted over $1100 for the fund. Two Kleinhans Music Hall events featuring the Buffalo Philharmonic Orchestra, and jointly sponsored by the BAA and BAS, raised almost $600 for the project. Numerous BAA baked goods sales and raffles also netted funds for the project.

The BAS Beaver Meadow fund raising efforts had anticipated pledges in excess of $135,000 for the entire nature center project, and it was believed that there would be an excess of funds needed which could then be used toward the observatory building construction. When this did not pan out and construction costs for the Beaver Meadow Fred T. Hall Visitor Center and Mable James Residence ran higher than expected further design changes to the observatory were made to keep the cost down.

The most significant change was to replace the rotating dome with a motor driven, slide off gable roof. These design changes were made under the supervision of Tom Dessert and Bill Deazley and, after a final financial arrangement was made with the Audubon Society, whereby, in addition to funds already raised, the BAA would contribute $1000 from its treasury and the BAS would match that by an equal amount, final construction plans were readied.

Originally all the construction except for the foundation was to be done by club members as volunteers. A site was selected at a high point on the central grounds between the Welch Road parking area and the Fred T. Hall Visitors Center. Tom Dessert, with help from John Riggs and Gretchen Shork, staked out the foundation site which would, when completed, accommodate a 16 foot by 24 foot rectangular structure facing on a true north/south line.

Dave Bigelow, the resident naturalist, provided the name of a local contractor he knew who brought in his back hoe and soon excavation for the block foundation began. We were finally on our way.

It soon became apparent to those at the construction site that if the building were to be properly completed in a timely fashion, that is before winter, depending upon voluntary work would not be good enough and some professional assistance would have to be obtained. The original idea of using a highly motivated volunteer work force, which would be dependable and skilled enough and available in great enough numbers on a regular basis, seemed like too much to hope for and not a very realistic idea. So, a decision was made and an agreement was drawn up with Biggie Construction (Ken, a BAA member and his brother Tim, an experienced carpenter) to complete the basic framing paneling. This would leave finishing and final touch work such as painting and caulking etc. for volunteers. The cost for having the construction done by the Biggies was estimated to be between $800 and $1200 for labor depending upon the time involved.

After the site was excavated to an approximate depth of 42" by the back hoe, the concrete footer was completed with help from the Biggies, Tom Dessert and his sons, and Warren Steinberg who did the final digging, mixing and pouring of the concrete. The concrete blocks (6 courses deep) were then layed by the same local contractor who did the excavating and, when completed, the foundation was ready for the floor deck. A little known fact that you might find interesting was that even after the careful surveying of the site was done to insure a true north/south line and the foundation installed, it turned out to be off true north/south by about 8" from one end of the foundation to the other. Since the foundation couldn't be moved, the Biggies, through the use of creative carpentry techniques known only to themselves, constructed the floor deck on a true north/south line by overlapping it 4" to the outside on one end and 4" to the inside on the other end.

The excavation for the telescope pier was dug extra deep (over 50 inches) to accommodate a massive concrete footer. The footer then supported a concrete filled cement block pier to insure a most sturdy support for the telescope mount. The pier construction is separate from the building foundation, and the floor of the building is built around the pier and does not touch it. This obviously was to prevent any potential building vibrations from being transferred to the telescope mount.

For the next several weeks, June through August of 1975, the Biggie brothers could be found working feverishly at the site during the day and camping out over night in Ken's van, except for weekends when they would go back home to Kenmore to visit wives and children. The drive back and forth from Kenmore during the work week wasted valuable time so camping there insured that the work would be completed sooner. Dave and Dee Bigelow provided the boys with an empty drum for burning wood scraps and other equipment and utensils for cooking. They also provided some food and beverages but, most importantly, pleasant conversation and hours of good company during and after the work day.

Sleeping over night at Beaver Meadow in a van with all the noisy birds, animals and especially cluster flies, which were ever present by the hundreds, was not the most pleasant experience. The flies would congregate inside the van late in the day as the outside air started to cool and a method of reducing their numbers inside the van to an acceptable amount, before closing up for a night's sleep, had to be devised. What turned out to work best was to first open up all the windows, and front, side, and rear doors. Then with rags in hand, one Biggie each would enter through the front doors waving the rags furiously thereby forcing flies by the dozens to seek safety out the open windows and doors. With rags in motion, and proceeding front to rear, doors and windows would be closed one after another with cluster flies scattering for their lives. When the rear door was finally closed and the last escape route shut off, a quick survey of the van's interior would usually reveal that a couple dozen or so of the little buzzers had managed to survive, deciding to spend the night with a couple of tired , grubby, construction workers. Unfortunately for them they made the wrong choice, for they were to become victims each evening of a horrible massacre at the hands and rags of the two principal officers of Biggie Construction.

The 16 ft. by 24 ft. observatory structure featured an 8ft x 16ft heated room at the north end and a 16ft x 16ft observation deck at the south end and, when completed, resembled in style a typical two car garage. The difference, of course, was the roof which by means of several large steel coasters and a motor drive mechanism could be slipped off the main structure toward the north approximately 18 ft. onto a set of steel rails supported by a series of 6 (3 on each side) 4 x 4 posts secured to deeply embedded concrete piers.

With the roof fully opened, the observation deck could be completely exposed and observing with the telescope could be accomplished with relatively little building obstruction toward the north pole. The top of the south wall was designed to fold out and down on hinges to provide a clear view of the south horizon where only the trees in the natural background obstructed the view. However, the original observation

deck design proved to be approximately 18 inches too low with respect to the side walls and in relation to the height of the telescope mount. One morning while standing at the base of the mount, Ken Biggie noticed this discrepancy and after bringing it to the attention of his brother Tim and Tom Dessert, it was decided that a design change would have to be found which would solve the problem with a minimum change to the original plans.

Tim recommended that a practical solution would be to just construct a second deck on top of the base deck approximately 18 inches high. This second deck would then make it possible for observers to comfortably use the instrument and the cost to complete this change would be minimal. The change was made and a set of free sliding steps was constructed between the warming room floor and the new higher observation deck. When the steps were slid back, the area between the two floors could be used as extra storage space, and I'm sure those ever present cluster flies found themselves a wonderful new congregating place.

Three slider type window units were placed in the warmup room at the north end of the building, with one on each side wall and one on the front wall. Two steel entrance doors were provided, one for the observation deck located at the south end of the west wall, and one for the heating room at the east end of the north wall which is used as the main entrance to the observatory. The doors are fitted with combination locks. There is also one interior door at the stair well separating the heating room from the observation deck located at the east side of the interior wall.

The observatory roof is made of a series of preconstructed truses with the eaves extending out beyond the walls to provide for an overhang along the sides of the building. These truses rest upon double 2"x4" plates running the length of each side directly above the top plates of the walls with 10 massive ball bearing steel coasters (five on each side) attached to their bottoms. The coasters, supporting the entire roof structure, ride along two large steel angle beams bolted to the 2"x6" top plates of the side walls which extend out twenty some feet over the exterior support piers at the north end of the building.

The roof rolls off the main building out over the rails being actuated by a 1/3 horse power reversible gear driven motor rotating, at approximately forty times per minute, a length of 2 inch tubular steel mounted laterally on the ceiling near the north end. A length of cable is attached to the pipe and the roof to form a winch type mechanism, which when activated by a switch controlling the motor, opens the observation deck to the sky in about 40 to 45 seconds. Limit switches were incorporated into the system to cut off power to the motor and prevent the roof from being rolled right off the end of the support rails by some overly anxious female observer.

The heating room is kept warm during cold evening hours when needed by a thermastatically controlled electric wall heater and is designed for observers comfort during long hours at the telescope. The building is also equipped with a timer control which automatically operates an exhaust fan during evening hours to dissipate any accumulation of moisture which could damage the structure or equipment. Aluminum flashing stock was also run along the building perimeter between the floor header and the foundation blocks to keep out both moisture and assorted creepy, crawler, critters.

Ample electrical lighting is provided for both the warm up room, observation deck, and for exterior safety and security lights. BAA member Dave Steinagle donated a specially illuminated wall clock for the observing deck and red lighting was also provided for the observers convenience.

With the exterior of the building basically completed in August of 1975 work on the interior began in earnest. Tom Dessert's wife made some window curtains to install and together with her husband and the Biggies installed the carpeting on the floors and the paneling on the walls. Help with these tasks was provided by several of the BAA membership. A problem of sealing the ends of the rails where the roll off roof comes to rest at the wall when closed was solved by attaching strips of flat rubber stock at each end of the roof over the rails. This does, for the most part, prevent the infiltration of rain and snow when the roof is closed.

A large contingent of BAA members, with brushes in hand and several buckets of wood stain colored to match the other buildings in the Beaver Meadow complex, managed to finish the building exterior, and with everything stained, including the workers, the Beaver Meadow observatory was completed.

In late December of 1975 the completely refurbished telescope was installed on the new pier and we finally had a nice new observatory. The expertise of Tom Dessert, Carl Milazzo, and others was put to good use one clear December night in aligning the scopes polar axis to the North star. After about eight hours of fine adjustments, they finally had the alignment they wanted. Tom Dessert even claimed to be able to achieve a ten minute exposure of a 200 milimeter focal length lens without the need for off axis guiding.

The BAA held its May, 1976 general meeting at the Beaver Meadow Fred T. Hall education building, and the observatory was officially dedicated at that time. Tom Dessert was appointed by the BAA Board of Directors as the first observatory director. Later, a second 8 inch F/8 reflector scope (built by the late BAA member Bob Kartyas) was stored at the new observatory to be used to supplement the main 12 1/2 inch scope during use on busy public nights. The observatory has been used extensively ever since its dedication and the members of the BAA who were involved in its development should be very proud and they are certainly deserving of all of our unending appreciation for providing the club a very fine observing facility.

Kenneth Biggie

P.S. Information for this article was obtained in part from materials in the BAA archives, especially the "History of the BAA Inc. 1947-1967", with updates, and from an article submitted by Warren Steinberg to Sky and Telescope magazine and published in the September, 1978 issue.

Enclosed is a preview of some classes being offered at the Buffalo Museum of Science this Spring in our Continuing Education Program. If you would consider including details of this opportunity, in your Newsletter or at a meeting, I am sure your organization's members would appreciate the information. In addition to the sample classes described, our Spring Program offers an exciting choice of outdoor hikes, regional tours, and other classes in the natural sciences to suit a variety of interests.

ADDITIONAL TOPICS IN ASTRONOMY BMS #113

ROWLAND RUPP ----- EDITH GEIGER ------ ALPHONSE KOLODZIEJZCAK

TAKE A MODERN LOOK AT THE OLDEST SCIENCE! INVESTIGATE HOW OUR SUN AND OTHER EXOTIC STARS BEHAVE. FIND OUT WHAT SPACE PROBES HAVE TOLD US ABOUT DISTANT MOONS AND COMETS. HOW DID THE UNIVERSE BEGIN - WILL IT END? DISCOVER STRANGE NEW OBJECTS SUCH AS NEUTRON STARS, BLACK HOLES AND COSMIC STRINGS. EXPLORE THE ANSWERS TO THESE AND THE ULTIMATE QUESTION...ARE WE ALONE?

TUESDAYS, MARCH 13 - MAY 1 (NO CLASSES APRIL 17)
7:30 - 9:30 P.M. AT THE BUFFALO MUSEUM OF SCIENCE

B.A.A. MEMBERS: $36 NON B.A.A. MEMBERS: $43

Call our Education Office if you have any questions or suggestions.

Thank you for considering this opportunity.

Sincerely,

Lorraine Tesmer

Lorraine Tesmer
Program Coordinator

LETTERS

Dear Darwin,

The latest Spectrum was great. I wish I could prod our locals into that level of performance. Of course being very fond of the Lindbergs was a big factor.

After several years of pushing the combination of our two clubs, we finally did it and our now the "Rose City Astronomers" — as you could see in the Nov '84 AL Reflector if Buffalo gets it. I see only Rochester from the NFCAAA in the AL. What happened?

Be good,

Don

5 YEARS AGO - Dan Marcus was our March 1985 speaker. His topic was how to photograph Halley's Comet which was due for its unspectacular apparition later that year. In April, Richard Karlson, a member of the Rochester club, spoke on "All About Eyepieces". The SPECTRUM carried the first of a two part article by Ken Biggie on the mysterious object SS-433, an object descibed as coming and going at the same time because of its spectral peculiarities. Edith's profile was on Jerry and Adrianne Morris.

10 YEARS AGO - Our March speaker for 1980 was BAA member Phil Cizdiel, who spoke on "Arizona Astronomical Observatories". In April, David Atkins from the Rochester Astronomy Club gave a talk about his visit to Arecibo in Puerto Rico.

The first in a two part article on the history of our knowledge about Mercury appeared in this issue. The author is unidentified. Ed Lindberg explained some of the details and challanges of grinding mirrors in his article on "Telescope Making". Ken Kimble, past BAA Secretary, was the subject of Edith Geiger's profile.

15 YEARS AGO - Dr. Seville Chapman, who then held the post of Director of Scientific Staff, New York State Assembly, was our speaker for March 1975. His topic was not announced in THE SPECTRUM. Dr. Francis Bajer, Buffalo Museum of Science Administrator of Education, spoke on "Lasers, the New Technology" at the April meeting. A two part article by Asterios (?) reported on our progress in funding the new observatory at Beaver Meadow. We had raised $2625, about half of what we thought we needed. John Riggs was preparing to give a field course on astronomy at Beaver Meadow as part of our program to encourage public interest in astronomy and our project there.

Ernst Both had a two part article on "Of Moon Cities and Selenites" in which he gave a chronology of the discoveries of Franz Gruithisen and his fanciful interpretations of them. Lunar cities, lunar vegetation and intelligent lunar beings were all surmised by this early nineteenth century observer. This entertaining article is well worth re-reading.

25 YEARS AGO - In March 1965 Norman Vester was scheduled to speak on the "New Cosmology and Possible Effects in a Rapidly Changing Society". The SPECTRUM promised he would provide "startling thoughts". I wonder what they were. In April, Harold Becker spoke on "Astronomical Photography Techniques". The March SPECTRUM carried a biography of Ernst Both. Who could have written it? In April the lead article was on Mars, interesting reading from this pre-Viking day. No author was given.

Rowland A. Rupp

SPY AND TELL

The Koestlers are happy over the engagement of their daughter, Lori Ann, to James Wisnieski. The wedding is planned for May 1991.

Ken Biggie had an emergency trip to the hospital where he became a patient from December 11 - 15. What was at first thought to be a gallbladder attack was proven to be misdiagnosed, and no cause was found for Ken's then excruciatingly painful experience.

The 1989 ultimate academic/athletic award at the University of Rochester went to the women's swim team of which Patty Rupp is a member. The swimmers received a certificate of commendation from the College Swimming Coaches Association of America.

Anthony Rupp, besides working on his law degree at Cornell, is doing some hockey refereeing on the side.

Conrad Stolarski is making a 10" Newtonian. He obtained a 9" gear from Ed Czapla and is going to modify his scope with a new gear and drive corrector to use for photography.

Darwin Christy has been reappointed Chaplain for the Tonawanda Lodge No. 247 F and A.M. for another year.

The unfinished stone 'dream house' on the corner of Kensington and Pauline Street, which was the work of the late Alfred Ricciuti, former BAA member, was demolished on the orders of city officials as an eyesore and dangerous structure, and was trucked to a dump in Elma. Friends of Ricciuti were unsuccessful in saving his "Parthenon of Pauline Street," but hope to reconstruct the stone work after recovering it from the Elma dump. An article covering the demolition of the 'dream house' appeared in the Buffalo News on January 11th.

Peter Olchvary is a senior at Amherst High School. He plans to go to college next year and perhaps major in astronomy. Peter does a great deal of hiking, spending Christmas vacation hiking in the Adirondacks where the temperature was -25°. He has also spent time walking on trails in Allegany and Beaver Meadow.

The Morrises had a rather unpleasant January. Adrienne and the children had that nasty flu that settled in the area, and Jerry suffered from a ruptured or slipped disc.

Ed Czapla is busy building an open truss 17" tube for his scope and hopes to have it finished in early spring.

Bob Rzoska spends clear nights checking Jupiter's belts. Besides astronomy, Bob is interested in collecting rocks and minerals. He enjoys searching in the Lockport quarry and the Bayview quarry in Hamburg.

Darwin Christy's article on Milton Updegraff in "Astronomer from the Past," (see Spectrum - November, December '89 issue) was reprinted in the Journal of the Astronomical Society of the Atlantic, in Atlanta, Georgia. In the article the mention of the involvement of Updegraff in the May 1900 Eclipse Party at Barnesville and Griffin, Georgia, prompted the editor of the Journal to suggest that a member undertake a research project on the expedition, and report any findings on the subject.

Both Jackie and Alice Mack received Wizard Gyroscopes for Christmas, and appropriately, Jackie, who says, "It's a jungle out there," received some plastic jungle animals. It is rib-tickling to find that their father, Jack, is fond of "The Garbage Man Blues" heard on Sesame Street. I'm sure he'll sing it for you if you but ask.

Cathy Sepulveda who baby-sits three children, one of whom is her son, Adam, claims that she doesn't talk to anyone over the age of four until she comes to our meetings the second Friday of the month. And Melissa Marcus, poor soul, on being asked during the refreshments at the January meeting if she knew anything for Spy and Tell, responded with, "I haven't talked to anyone since Christmas." I think you'll agree that there seems to be a problem of some sort here.

Edith L. Geiger

$$$ For SALE $$$

CELESTRON C8 - 2" Star Doagonal - 80mm Finder Scope with other accessories, including photographic equipment only two years old. Asking $950.00

Dan Precious
26 Foxborrow Lane
Fairport, NY 14450 - ph (716) 223 8191

- - - - -

A 10" Fiberglass f5.6 Tube
Ronnie Colye
773 Beach Rd.
Cheektowaga, NY 14225 - ph (716) 663 7844

Public Nights are starting up in April!! As usual I need your help. Sign up sheets will be at the membership desk, or you can contact me. Remember you do not have to be the leader, you can assist by just being there, and you can have fun learning too. I will be having the same policy of 1 leader + 1 or more assistants rain or shine!!!! for public night.

SPECIAL OBSERVATORY EVENT::: Telescope Clinic for all will be held Saturday April 21, 10am-5pm & 7pm-10pm and Sunday April 22, 1pm-5pm. I could use loads of help. Bring your own scope, computer, photos, and come join the fun! P.S. it is a great time to come visit Beaver Meadow as it is their spring open house.

STAR PARTIES; Time to start reserving your star party with me, so we can get the summer organized.

PHOTO SESSIONS; Saturday March 17 & Saturday April 21 (after public night). March we will be practicing for comet killing. In April we intend to shoot to kill one COMET AUSTIN!!! Our motto will be "Don't stop the shooting until you see the whites of Sunrise!!!!"

NEW SCOPE: The Beaver Meadow Board of Managers will review our proposals for the observatory in March. At the present time no major objections have been raised. Now we need Money, and people to help out. Are you still interested?? Fill out the survey at the membership desk at the next meeting!

Daniel R. Marcus
Observatory Director

INSTRUMENT NOTES

Over a long period of years I taught (or tried to teach) telescope making to soem 300 individuals. I noticed, and was sometimes amazed, at the great difference in aptitudes of various students. Some people do not seem to be able to translate simple verbal directions into manual motions. Psychologists speak of faulty neutral linkages between eyes and arms. Some people can never acquire proficiency in such activities as bowling, baseball or golf. The same certainly applies to mirror making. Some people do not seem to be able to hollow out the mirror blank. I explained to the students that at first the mirror must overhang the tool at the sides so that the center gets hollowed out and the tool gets ground convex. Most students follow this direction faithfully enough, but one of them seemed to think that the center of the mirror had to pass over the center of the tool as otherwise there would be areas that would receive no grinding. This thought may have been logical but some operations in craft work are not perfectly logiacl.

Then there is the matter of speed. The strokes should be made slowly applying as much pressure as you can. This results in efficient grinding. If the strokes are made too fast there will be a rocking action and the mirror will be ground down at the edges as well as in the center. Some students are perhaps not used to manual labor. Finding the work distaseful, they wish to get on with it. The student mentioned above worked fast and long, spending several weeks taking off about an eighth of an inch of glass and leaving the mirror flat. He did not realize that it is comparatively easy to grind a six inch mirror to the proper depth and shape in one or two evenings.

An experience at the other extreme started out with a telephone call. A surgery intern at one of the local hospitals said that he wanted to grind a mirror and make his own telescope as a means of relaxation from his strenuous medical duties. He had bought a six inch mirror kit with an instruction booklet. He asked if I would help steer him around some possible difficulties.

I started him out by having him go down to the hospital maintenance shop for a piece of board to clamp on to the corner of a basement table. I explained how the mirror blank is hollowed out to the thickness of a dime at the center. A few days later he called saying that he had reached the desired depth and that my tests for sphericity showed that he had a good curve. I then explained how to go through the successively finer grits. He was soon ready for polishing.

For the polishing stage I recommended that he make the polishing lap on a circular piece of plywood rather than on the grinding tool, in case he might have to go back to a grinding stage. He made a pitch lap in his basement although he said that the smells didn't increase his popularity at his apartment. I also observed that some stages of the process are harder to explain than to demonstrate. I recommended that only the bare minimum of polishing abrasive be used (only a teaspoon of rouge to a glass of water) so that the mirror would make firm contact with the lap. All in good time he finishied the polishing to a spheroidal shape and bult a tester following the directions in the Edmund pamphlet.

The mirror was then ready for figuring. This stage takes the curve from a spheroid to a paraboloid. It is in some ways the most difficult in the whole series of steps. It is difficult because only slight amounts of work will make changes and the changes may be in the wrong direction. It is tedious because only slight amounts of work can proceed. My student kept calling and describing the appearance of the shadows and I would "prescribe" corrective measures. Perhaps I should have been more humble prescribing to a surgeon. And I did not know how long his patience would hold out as not all of my directives worked. Perhaps I should say that many of them did not. But he seemed very understanding and eagerly tried anything I suggested. And he had (to me) an uncanny ability to follow directions exactly and to report the results of any test. Within a month or so his description of the shadows led me to believe that he had a good paraboloid. He sent the mirror away to be aluminized and was then ready to make a mounting.

I recommended that he make a pipe fitting mounting as there was a good description in the Edmund booklet and he had a good friend in the maintainance shop who could cut and thread the pipes. With the help of a few more phone calls he finished the mounting and tried the scope on a few test objects that I recommended for testing. He and one of his colleagues were very pleased with the finished telescope. It was rewarding to me. With the help of an Edmund booklet I had given a course in telescope making without ever seeing the student, the mirror or the finished telescope. I tried to wedge in a visit into his busy schedule. But he was on 24 hour call and I did not wish to intrude. One evening, after I had no word for a month or so, I called the hospital. I was informed that he had transferred to a hospital in Minnesota and I never heard from him again. Perhaps it was my fault for not following him. But I was on a busy schedule myself and I just lost track. My experience with this student was inspirational. He was able to get many things done by utilizing odd intervals of time. He was an example of "The Miracle of the Spare Moment."

On thinking over the problems of mirror making, I am sometimes puzzled. Because the intern understood me so well I conclude that I am able to give reasonably clear verbal directions. There is a problem with words - words mean different things to different people. But there are other difficulties. A big problem is lack of experience in manual crafts. The best student mirror I ever saw was made by a manual arts training teacher in a high school. People who have never built anything should not expect to do well in the craft of mirror grinding. But there are other factors. Some people with little skill manage to complete a mirror. It is a matter of making a strong effort to pay attention to details and not being reluctant to put forth a sustained effort. Here experience in heavy manual labor is a help. Then the effort of removing a thin layer of glass seems easy by comparison. I have always felt sorry for those students who were unable to complete a mirror in the ten weeks period of the class. Many of these have been pulled through to completeion in our monthly instrument meetings. For those who worked diligently and finally finished a telescope there was a great feeling of satisfaction. When a person has completed a difficult project such

as an electronic device or a telescope he experiences a feeling of creativity. He has converted an aggregation of inanimate materials into a machine. He gets the feeling of breathing life into it. It will continue to do his bidding faithfully bringing the heanenly bodies nearer and making them more beautiful.

Ed Lindberg

ATTENTION COMPUTER USERS

Richard Zander the operator of the Museum of Science's Taxacom computer bulleting board has given the BAA a section to use for the exchange of astronomical information and programs. Currently the BAA section contains the electronic edition of Sky & Telescope's Skyline reports, the American Sunspot Program's monthly newsletter, current NASA news, satellite orbit information and a tracking program for IBM type computers, the Arizona Database Project a Dbase III file containing information on over 16 thousand objects, the U.S. Naval Obsrrvaoty almanac for 1990, and many other types of astronomical information.

The board is open to all users with any model computer and a standard telephone modem. The phone number is 876-7581, and can be accessed 24 hours a day. The settings are 8 bit 1 stop bit no parrity bit, and will operate at 300, 1200, and 2400 baud.

To use Taxacom just call the number and at the password prompt type in "guest". Make sure you have a pen and paper to write down the two passwords that the system will give you. Also when the computer prompts you for coments mention that your a BAA member. Richard will give you a call later to verify name and phone number for full access.

There are some things that all users must remember!

Because there are many different types of computers being used please send regular information (text) in the ASC II format. Do not use file compression programs in these types of files. This will allow everyone to ne able to read them,

This baard supports only the XMODEM protocol for program file tranfers.

When you send up a program please state in the description, the length in bits (ex. 11k), what type of a computer it's for and a short description of what it does.

If you have some information that you feel someone will be interested in put it on the board, but don't feel that if you don't have anything to contribute that you should not call and use it. All uswrs are welcome and are needed.

For IBM users I would recommend down loading two programs Cshow and Pkz101,exe. Schow will allow you to view the pictures and charts, and Pkz101.exe will allow you to unarchive .ZIP files. These files are found in the shareware section of the board.

For questions or problems with your computer just give either Jack Empson 694-3814 or Dave Sepulveda 694-5381 a call. If you have a problem with the board or loose your password call Richard Zander at the Museum 896-5200 during the weekdays.

Jack Empson

POSTER REVIEW

I've never been asked to write a book review, but I've been asked to write a poster review. What are they trying to tell me? Not being a poster person. I was a little dismayed at the request, but decided to give it a try.

Somewhat to my surprise, I liked the poster! It has nine excellant color views of Neptune and its environs as seen by Voyager 2. The size and format of the photos is varied - it's not monotonous for the viewer. A brief, but concise and informative, text summarizes the salient discoveries. All this on fairly stiff 36" by 24" poster material.

The highlight shots include a full view of Neptune as Voyager approached the southern hemisphere and a large scale reproduction of the famous photo showing a closeup of the distinct variety of terrain seen on Triton.

Another view is a dramatic shot of Neptune and Triton in extreme crescent phases that is very reminiscent of the scene of Earth and the moon taken by Voyager as it set out more than a decade ago. One picture shows Neptune as seen if viewed directly above its south pole. Obviously this has to be a composite since the spacecraft never had that vantage point: but unlike some composites this one has softened lines where separate pictures have been merged. You have to look for them. A particularly good shot shows the rings of Neptune emphasizing the clumpiness of material in the outer one.

I'll bring my copy to the February meeting and see if you agree with me that this is an impressive summary of last year's Neptune flyby. Buffalo's Discovery Shop sells them for $8.95. Or, you can mail-order one for an extra $1.50 handling charge from:

Kalmbach Publishing Co.
P.O. Box 1612
Waukeska, Wisconsin 53187

Rowland A Rupp

HYDRA

But lo! afar another constellation
They call it Hydra. Like a livin creature
'Tis long drawn out. His head moves on below
The midst of the Crab; his length below the Lion;
His tail hangs o'er the Centaur's self.
---Aratos

The HYDRA or Sea Serpent, was the terrible monster that lived near the marshes or Lerna. And the creature, according to an old legend, had many heads. The peculiar thing about the heads was that when one head was cut off, two others grew in its place.

Another name, "The Water Snake," is now well defined under the single title, which in ancient times, as Ovid wrote, as described with such riders as Corvus and Crater.

Hercules sought to distroy the monster with his nephew Iolaus. As fast as he cut off a head,Iolaus, with a red-hot iron, seared the cut preventing other heads from growing back out. One central head of the monster was supposed to be immortal. When Hercules had cut it off, he buried it under a rock.

The Egyptians were led to believe that this extended constellation of a serpentine figure, Hydra, somewhat re-

the heavenly counterpart of their famous River Nile.

Hydra is supposed to be the snake which is drawn an a 'Uranographic Stone' from the Euphrates about 1200 B.S. and is one of several sky symbols of the great dragon, Tiamat.

In the 10th century, this constellation was lengthened greatly, and now stretched from Cancer to Scorpio, nearly 95 degrees in length. For an unknown period, its winding course symbolized that of the Moon; hence the Moon's nodes were called the Dragon's Head and Tail, ascending and descending respectively.

Ulug Beg described the star Sigma as the Snake's Nose, which is pretty well placed to be given that name.

Colse by the 'Serpent' spreads; whose winding Spires
With order'd stars resemble scaly Fires.
Creech's 'Manilus'

It is confusing to determine the many conflicting stories between Hydra, Hydrus and Draco. The fact of the ancient origination of this subject is shown in the discovery of the pictures of conflict on stone slabs in Persepolis and Ninevah, and in Greek Mythology. I this second short story we learn this Mythological Monster is often confused with the equally fabulous Griffin, distinguished by its featuring wings. With its supposed terrible fighting powers - it is not surprising the ancient Greeks and Romans utilized its figure as expressive power. The Grecian "Hydra" was especially formidable from its having seven ferocious heads. Ten labors were inflicted on Hercules by Eurytheus, King over Mygenae. The second labor was that of having him destroy the Lernagaean Hydra. He accomplished this with the assistance of his 'friend' Iolaus. Iolaus' help occurred while Hercules cut off a head, then Iolaus would burn the root with a hot iron.

From an old print

In an even slightly different story, Hydra, being refered to as feminine and not masculine is in the previous stories, was a monster well known in Greek fable. She was the offspring of Echidna and Typhon, and inhabited the marshes of Lerna, not far from Argos. She had many heads, which were endowed with the faculty of renewing themselves endlessly. Thus, although many heros tried to slay the Hydra, Hercules alone succeeded by a clever trick. As fast as he severed her heads, Iolaus, his companion, burned the roots with a flaming brand. The central head which was immortal was buried underneath a huge rock by the hero who then dipped his arrows in the poisonous fatal wounds. According to Preller, the hydra myth is the allegorical interpretation of the damp ground of Lerna, with its numerous springs which exuded a poisonous vapor. The slaying of hydra by Hercules signifies the purification and draining of the marsh.

Many constellations border on Hydra which are:- Leo, Cancer, Canis Minor, Monoceros, Puppis, Pyxis, Antlia, Centaurus, Libra, Virgo, Corvus, Crater and Sextans....

Darwin Christy

ASTRONOMICAL HAPPENINGS

SOLAR: The Sun will make its final appearance in Aquarius and enter into Pisces on March 12th. On the 26th of March the Sun will graze Cetus and on April 16th the Sun will leave Pisces and enter into Aries and remain there into May. On March 20th, the Sun will cross the Celestial Equator at about 4:19 PM EDT (Vernal Equinox)

LUNAR: The Moon will show phases of First Quarter on March 3rd & April 2nd;Full (Sap) on March 11th & (Pink) on April 9th; Last Quarter on March 19th & April 18th; New on March 26th & April 24th. Apogee will occur on March 16th & April 12th. Perigee occurs on March 28th & April 25th.

LUNAR Conjunctions:
Ceres on March 4th
Jupiter on March 5th & April 1st & 29th
Antares on March 17th & April 14th (both are possible occultations)
Uranus & Neptune on March 20th & April 16th
Saturn on March 21st & April 17th
Mars on March 22nd (possible occultation) & April 20th
Venus on March 23rd & April 21st.

PLANEATRY Events:
Vesta in conjunction with the Sun on March 12th
Juno stationary on March 16th
Mercury at superior conjunction on March 19th
Venus at greatest brilliancy on March 30th
Mercury at greatest elongation (20 degrees east) on April 13th
Uranus stationary on April 13th
Neptune stationary on April 16th
Mercury stationary on April 23rd.

METEOR SHOWERS:
March 11th - Zeta Bootids
March 16th - Corona Australids
March 20th - Camelopardalids
March 26th - Virginids - This is a stream of fairly dim, greenish and short rapid meteors. About 25 or 30 of these 5th magnitude meteors can be seen, but one must be in the country away from lights to see them easily. They are supposed to be a major shower, perhaps because of their greenish hue,

April 4th - Serpentids - This shower is little known. Even so--they do produce about 20 hourly and are about 4th magnitude. Color and type are unknown as yet, but needed data can prove them to be a good shower of worth.
April 7th - Delta Aquarids
April 9th - Alpha Virginids
April 17th - Rho Leonids
April 21st - Lyrids
April 25th - Mu Virginids
April 28th - Alpha Bootids

Darwin Christy

REPRINTING

SPECTRUM DEADLINE

The deadline for the next issue is April 13, 1990--

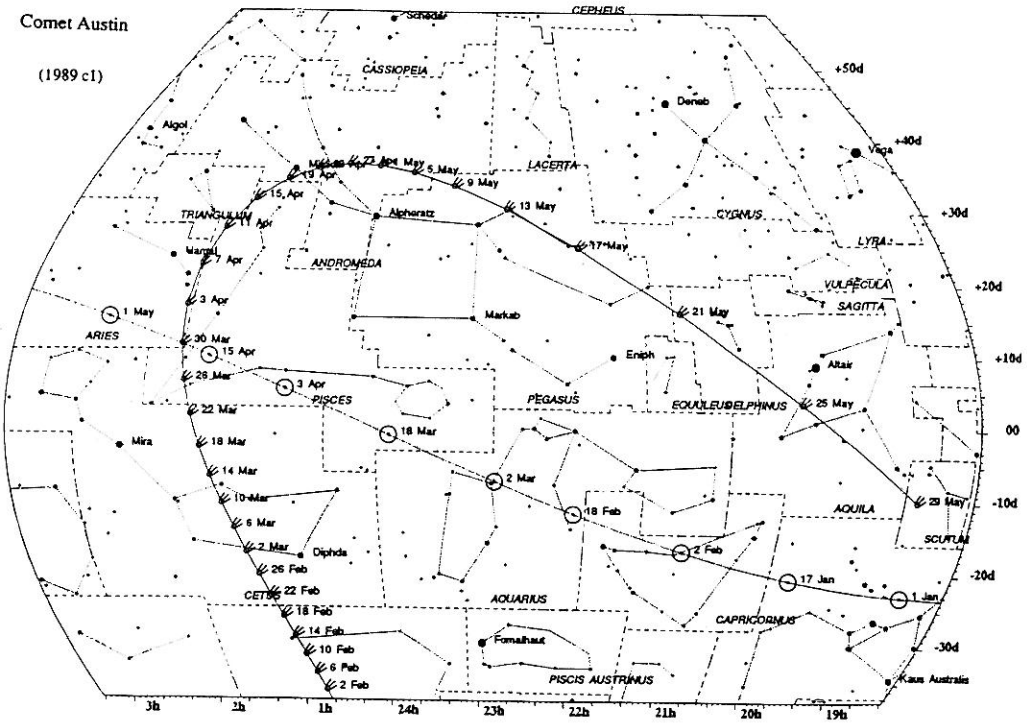
THE GREAT COMET OF 1990

Society of the Atlantic Journal of the Astronomical

by Don Barry

Comet Austin

(1989 c1)



* THE SPECTRUM *

BUFFALO ASTRONOMICAL ASSOCIATION, INC.

DARWIN CHRISTY, EDITOR
216 KOHLER ST.
TONAWANDA, N. Y. 14150

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