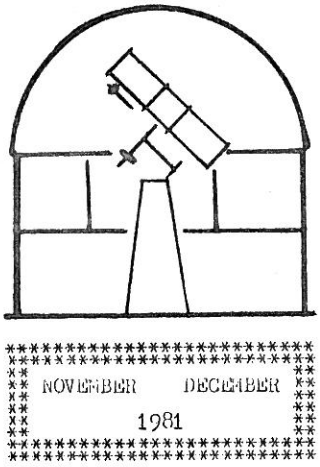

The Spectrum

NOVEMBER DECEMBER
1981

Buffalo Astronomical
Association, Inc.
Darwin Christy, Editor

NOVEMBER meeting: The November 13th meeting will begin at 7:30 PM in the New Science Building at Buffalo State College on Elmwood Ave. Our speaker will be Rowland Rupp, a member of the BAA and a member of the Board. His topic will be, "Extraterrestrial Intelligence." Let's welcome Rowland.

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? QUIZ ?

1) How bright is 'first magnitude'?

2) What are variable stars?

3) What are intrinsic variable stars?

4) What is peculiar about the Cepheid variables?

5) For what is Barnard's Star notable?

Answers will appear elsewhere in the 'Spectrum'.

* * * * *

A few dots here & a few dots there formed the following constellations in the last 'Spectrum'.

DRACO & TAURUS

* * * * *

Beaver Meadow public nights will take a recess from November 15th until March 1st, 1982.

* * * * *

El Paso Sunshine

From a small news clip dated July 11, 1970 comes the following, "The Sun shone today for the 136th consecutive day. The Sun has failed to shine only 7 of the last 3,198 days."

I'd say, "Let's all move to El Paso."

* * * * *

The Naked-Eye Limit

What is the magnitude of the faintest star ever detected by the human eye without optical aid? As reported in Popular Astronomy magazine (December 1975), Prof. Heber D. Curtis of the Lick Observatory carried out an experiment to determine this limit in the early part of this century. Working from the (then) dark skies of Mt. Hamilton, Calif., Curtis was able to detect visually, stars down to magnitude 8.6. The procedure employed was as follows: a blackened, 6-inch hollow tube was fastened to the barrel of the 36-inch refractor, and collimated so that it was centered on the same part of the sky as the finder of the large telescope. Curtis then moved the telescope until he placed successively fainter stars in the field of the tube-----

DECEMBER meeting: The December 11th meeting will begin at 7:30 PM at the Buffalo State Planetarium in the New Science Building on Elmwood Ave. This will be our annua Christmas Party - complete with 'wine' & 'cheese', member's photos and a presentation by Art Gielow of the planetarium staff. We welcome Art.

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JANUARY - FEBRUARY "SPECTRUM" DEADLINE

DECEMBER 19th due the the Holidays--------

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DUES are Due.....Please see Adrienne Kimble, she will gladly accept them from you.

Students and Senior Members - $ 5.00

Individual membership - $ 10.00

Family membership - $ 15.00

This is a final notice through December 31, 1981.

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In case of imclement weather, tune in to W B E N Radio, 930 on the dial, for information if meetings will be cancelled.

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Naked-Eye, cont.

an assistant working with the finder telescope confirmed each observation, and later made accurate determinations of the magnitude.

Shaun Hardy

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Anyone interested in a copy of the BAA By-laws or a BAA Directory---please see Adrienne Kimble.

* * * * *

WANTED ------- NEEDED ! One or two willing members to be in charge of the refreshments at out general meetings. Who ever is willing to take on the job, please call Al K. (634 5472). Let's keep the Happy Hour going by some one volunteering their services. Thank you!

* * * * *

Group Meetings

The Instrument Scetion meets on the fourth Fridays at the Museum of Science. See Ed Lindberg for information about the group.

The Study Group meets on the third Fridays at Buffalo State. For information see Ken Kimble.

Spy and Tell

Our editor, Darwin Christy, is officially retiring after working for Niagara Mohawk for many years. His last day of work, however, will be October 23rd, and he and Ruth are leaving the next day for Pennsylvania for their annual wedding anniversary trip. Congratulations on your thirty-eight happy years of wedded bliss.

Al Kolodziejczak is excited over his new high technology TRS 80 micro-computer, and is amazed at its remarkable performance.

Bill Kirst reports that he worked a 42 hour week and received his pay-check in the amount of $ .42. Some people have to work awfully hard for what they get. Bill also informs us that he has been elected as temporary treasurer of the L5 Society of the Miagara Frontier.

Former member, Phil Cizdziel, who is a student in Hawaii is a graduate research assistant to Dr. Sidney Wolff. Phil is presently reducing photographic spectras of blue supergiant stars.

Congratulations to Dennis Jewell. He has been elected President of the Orchard Park Chamber of Commerce.

Claudia Bielinski is very interested in geology and paleontology and spends a great deal of time searching for fossil remains of past geological periods. She recently went on the Museum's geology trip to Smokes Creek in Orchard Park.

Claudia also has two meteorites in her possession. One is part of the meteorite that fell in Lancaster, Kentucky in 1977.

Christopher Stokes graduated from college last year with a degree in forensic chemistry. He is hoping to get work in that field but in the meantime he is employed at the Brighton-Eggert Pharmacy in Tonawanda assisting the pharmacist along with his other duties in the store.

He finds great excitement in going to stock car races. He also works on his friends' racing cars that enter the competitions.

Doris Koestler has a very profitable hobby. She takes plastic detergent bottles as a base from which she creates elaborate dolls which she sells with great success at arts and crafts shows. The next show she is entering is in Batavia on November 20-21. With the money she has earned from the shows she has purchased a 6" Meade.

On October 25th she visited Lancaster, Pennsylvania in Amish country. She enjoys this interesting town and especially the food prepared by Amish folks.

We'r happy to announce the engagement of Anita Kirst to David Williams. They are planning a June wedding.

Edith Geiger

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Words are like BEES - They contain honey but sometimes sting !

* * * * *

FOR SALE :- Celestron 5 with equatorial wedge, telextender, counterweights, Nikon adapter, 25mm ocular, case, and manual. Excellent condition. Asking $ 400.00

Philip C. Henzler
94 Brittany Dr. ph. 691 5306
Amherst, N. Y. 14120

* * * * *

November Constellation

Because they are short, there are two Ancient constellations for November.

"GLOBUS AEROSTATICUS" (vel Aetherius, the Balloon) was formed by La Lande in 1798. This stellar creation of his seems to have passed out of recognition in the world of science. It was east of Microscopium, between the tail of the Southern Fish and the body of the Capricorn. Bode published it in his 'Die Gestirne' as the Luft Ballon, Ideler's Luft Ball, with twenty-two stars in it. Father Secchi still had it in his maps as the Italian 'Aerostato.' The French called it the Ballon Aerostatique.

"MACHINA ELECTRICA" which was one of Bode's constellations of 1800. It lies south of the central portion of Cetus. With him it was the 'Elektrisir Machime' or 'Machine Electrique.' The Italians named it 'Machina Elettrica.' Today it is generally omitted from the maps and catalogues.

December Constellation

Ere the heels of flying Capricorn
Have touched the western mountain's darkening rim,
I mark, stern Taurus, through the twilight gray,
The glinting of thy horn,
And sullen front, uprising large and dim,
Bent to the starry Hunter's sword at bay,

Bayard Taylor

"TAURUS" (the Bull) was, perhaps, the first established constellation because it marked the vernal equinox from about 4000 B.C. to 1700 B.C., in the golden age of archaic astronomy; in the ancient zodiacs preserved, to us it began the year.

Taurus lies on the ecliptic as the second sign of the Zodiac, following Aries, the Ram. It is bound on the north by Auriga and Perseus; on the west by Orion and Gemini; on the south by Orion and Eridanus; and on the east by Aries and Cetus. It is well positioned for observing at our latitude and many interesting objects are contained within this constellation. A portion of Taurus lies in the Milky Way, in a rich field of stars. M-1 (NGC 1952), the Crab Nebula lies just a bit northwest of the star Zeta Tauri. This nebula was the result of a super-nova which occurred in the year 1054. Its coordinates are: RA 05h 31.5' & +21° 59' dec. M-45, the Pleiades (Seven Sisters) is at RA 03h 44.5' & +23° 57' dec. It is made up of Alcyone, Celaeno, Electra, Taygeta, Maia, Sterope, Merope, Pleione and among them is their father, Atlas. The brightest is Alcyone and has a magnitude of 2.96; it is also designated with the Greek letter 'Eta.'

Another star cluster in Taurus is the 'Hyades'. This asterism is shaped like a 'V' with the bright star, Aldebaran among them, but is not with the cluster as it is about half as far away as the cluster stars.

Double stars include Alpha (Aldebaran), Theta, Rho, Tau, Phi, and Chi.

Variable stars are Lambda and 'Y'.

This constellation appeared on the back page of the last 'Spectrum', which has been identified.

* * * * *

A wonderful device is the bolometer,
It's something like a thermometer.
It can detect the heat
From a polar bear's seat
At a distance of nearly a kilometer.

'unsigned'

Sorry that I forgot who gave this to me.

DC.

* * * * *

? Did you know ?

The first record of an Aurora was December 11, 1719?

James A. Machowski

In Buffalo born James Machowski we have a very active young man who, sa he says, "likes to get into everything." After graduating from School 69 he went on to Burgard Vocational High School and, as a senior, was one of eight students selected to go to an advanced school in Williamsville maintained by the Ford Motor Company. From there he was hired by former John Maroone Ford in '64-'65 as an apprentice mechanic.

His decision to enlist in the Navy gave him the opportunity to be enrolled in highly instrudtive courses of study and took him to those "far away places". He was sent to boot camp at Great Lakes Training Station near Chicago, after which he went into the Engineman School which was at the Training Station but apart from the boot camp. This compact twelve week course was pure engineering duties aboard ship.

The next eighteen months were spent in Guam, the largest and southernmost island in the Marianas group in the Pacific, where James was assigned to the U.S.S. Protius, a repair ship for submarines. Duties consisted of going on to a sub and aiding the drew in repairing and making the ship seaworthy for cruises. While at Guam his ship occasionally went to sea for training, and sailed to Saipan, about 150 miles NNE of Guam. On one of the trips, after hearing a typhoon storm warning, the ship was kept at sea rather than run the risk of its being battered against the pier. This monstrous tropical cyclone held the ship in its grip for two weeks while violent whirlwinds churned away at the sickened crew.

James was ultimately sent to San Diego where he was stationed for almost two years on the U.S.S. Nerius, a sub-tender (repair ship). When the ship went to sea, he continued basically in the capacity of helping the crew. Week long trips took then to such places as San Francisco and Matzalan, Mexico.

While in grade and high school, Jim had a close friend who, after high school, had moved with his family to Arizona. He, likewise, had joined the Navy, and by some strange coincidence, Jim ran into him on board his ship stationed in San Diego, which made for a joyful reunion for both.

After James finished his assignment in San Diego, his tour of duty was over and he had advanced to Second Class Petty Officer. He was discharged in October of 1969 and was once more a civilian.

Returning to Buffalo, he became employed for one and a half years at Summit Distributers, Inc. on Main St., and worked until March 1971 on the assembly line, building electrical connectors filling orders for other companies. He was then hired by Cummins Diesel where he went from apprentice to class A mechanic and is currently employed.

At the wedding of his cousin, James met Linda Barczykowski which sparked a romance which led them to the altar in 1972. They have two children, Angela, who is nine, and James (Jamie) who is seven. Angela is in a Brownie Troop and is looking forward to becoming a Girl Scout, and is a talented dancer who has attended dancing school for six years. She is also a cheerleader for her brother's football team. Jamie plays tee-ball from late spring to mid-summer and is on the Little Loop football team from summer to mid-autumn. Linda enjoys crocheting and embroidery work, and ceramic classes where she makes many things for their home. She works at tops but also finds time to be assistant Brownie Leader.

In 1974, James felt an urge for adventure, so he enlisted in the Coast Guard Reserve on Fuhrman Boulevard and was a member for six years. During that time he became an engineer for a boat crew and was part of a search and rescue team whose duty it was to search for boats that were overdue, fishermen who were late in returning from a trip, boats that had capsized, and many other emergencies. An event he doesn't care to recall was the finding of a drowning victim in the Black Rock Canal. Two weeks out of every year he is called to serve on active duty. Three times he has been sent to a school in Yorktown, Virginia, for courses which are mainly on boating.

Jim likes to putter around the house, and in so doing he has found that he has latent artistic ability. A year ago he sketched an Indian, patterned after the one on his son's football helmet, and this year he proceeded to create a mural on one of the inside walls of his garage, using this Indian sketch. He is also a hunter of sorts, taking his bow and arrow to the Franklinville area in search of wildlife.

All of Jim's travels have not been on the high seas. At a time when the airlines were on strike he had to go by train to St. Louis and San Diego. He has also tr traveled to Phoenix as well as Chicago and Milwaukee.

He became a member of the B.A.A. two years ago. He has a 60mm Jason but feels that he is more of an armchair astronomer who enjoys the meetings of our advanced study group. He is looking forward to the time when he will have more opportunities for observing. He reads books on astronomy and physies, and also those on history dealing with the American Revolution.

James is an energetic fellow with a love of adventure, and the stamina to sustain him through rugged, stressful situations. He is a devoted family man sharing with them their joys, hopes and accomplishments. We are very happy to have Jim as a member.

Edith L. Geiger.

* * * * *

QUIZ-CRYPTS:-

Each group is individual and not related to the others for decoding. The topic is given for each with a sample of what you will find among them when solved. To solve these crypts, simply substitute the letters to the proper letter of the alphabet. Remember that if 'V' stands for 'R' in one word, it does for the rest in the c category with the sample.

1)ASTRONOMICAL TERMS example: Apogee	2)METEOR SHOWERS example: Perseids
JYSTICGE	DRLXHLEQFXK
HGELOEHKCGE	AUHFXK
YTPCWTT	JQL LDRLHFXK
THICYBT	XHLTYEFXK
ATHICEJKCGE	YHFYEFFXK
PCWSK JBHTEBCGE	QLRHFXK
BKJKCGEJPV	LEXHYGJXFXK
TDOCEGR	AJYEFXK
EGAT	BJGFEFXK
YTPCSTICGE	XJAQL LDRLHFXK
LOICJE YTPCGE	MLWWL TUBEFXK
GYYGBCKCGE	KWYHLXFT

Answers to last newsletter crypts.

1) Pluto	Comets	Hadar	Cygnus
Mars	Moons	Altair	Perseus
Jupiter	2) Sirius	Betelguese	Andromeda
Earth	Rigil Kent	Aldebaran	Cetus
Venus	Arcturus	3) Canis Major	Monoceros
Uranus	Vega	Bootes	Draco
Saturn	Capella	Lyra	
Neptune	Rigel	Auriga	
Mercury	Procyon	Eridanus	
Asteroids	Achernar	Aquila	

Celestial Boulders

Asteroids are basically small rocky worlds that orbit mainly between Mars and Jupiter. Studies indicate that half a million asterpids larger than a mile exist, and those smaller run into the millions. Originally there should have been only one small planet, about the size of our Moon, but the gravitional forces of Jupiter and the Sun allowed about three dozen 700 mile size asteroids to form and soon those forces changed their circular orbits to elliptical ones. That resulted on most having collisions with each other, because their orbital paths intersecting, which scattered many through-out the solar system. Many asteroids closer to the Sun than the orbit of Mars are actually the remnant of dead comets. Asteroids sometimes also go by the name of minor planet or even planetoid.

When an asteroid is first discovered it is given a temporary identification indicating the year found, and a letter code for what half of the month and how many sited. If it does not become lost it is given a permanent cataluge number and the discoverer can give it a name. On January 1, 1801, Giuseppe Piazzi discovered the first asteroid which is the largest and second brightest and is named 1 Ceres. Today they are being found at the rate of 100 per year, and presently 2,400 have well known orbits, while an additional 5,000 have been lost. With so many, they have been named just about anything. Here are a few examples: 60 Echo, 216 Cleopatra, 747 Winchester, 1000 Piazzia, 1537 Transylvania, 1620 Geograohos, 1815 Beethoven, 2001 Einstein, and 2104 Toronto.

The asteroid belt is a region between the orbits of Mars and Jupiter and is where 95% of them are located, but since they are so numerous, that still leaves many outside of the region. Three are known to be as far out as beyond the orbit of Saturn; they are: 944 Hidalgo, 1973SC2, and 2060 Chiron. A group that oscillates around the LaGrange points L-4 and L-5 of Jupiter are called the Trojans of which over 200 are known. Those located between Earth and Mars are of the Armor group and over one hundred are catalogued. Finally the Apollo group between the Earth and Sun, of which about 30 have been discovered so far.

The orbit of an asteroid can be more circular than Venus' or more elliptical than some comets. Eccentricity is a numerical relation defining the shape of an ellipse. A circle is zero and the nearer it approaches 1.0000, the more elongated the ellipse is. The range is 0.0068 for 1177 Gonnessia to 1566 Icarus with 0.83. The average orbit is tilted by 15 degrees but the range goes from as little as 0.009 for 1383 Limburgia to as steep as 67 degrees for 1973NA. The closest approach to the Sun is 17 million miles by 1566 Icarus to the most distant 2060 Chiron at 1.8 billion miles out. The shortest orbital period is 277 days for 2100 Ra-Shalom to 51 years for 2060 Chiron.

Large asteroids are fairly round in shape because they have enough gravity to slowly squeeze itself into a sphere. If such an asteroid had its wide surface pointed face on toward Earth, it would look five times brighter than when its long end toward us as it spins around. The largest is 635 miles diameter, 1 Ceres, and has a very small apparent disk of 1.3 seconds of arc, which can be resolved with a large amateur telescope when the Earth's atmosphere is steady. The smallest known is 1976UA and is 1000 feet across which is smaller than the Rock of Gibraltar. A day on the asteroid 128 Nemesis is 39 hours long do to its slow spin while 1566 Icarus whirls around in just 2.3 hours.

Some asteroids reflect as much as 45% of the light that shines on its surface as with 44 Nysa which is more reflective than natural chalk. On the other extreme is 313 Chaldaea with 1.4%; it is darker than a slate black-board. Only one asteroid is bright enough to be seen with the unaided eye and that is 4 Vesta at magnitude +5.6 and can be seen in dark country skies. It is the brightest because it is both large (300 miles) and highly reflective (23%), and not being too far away helps also.

The color of an asteroid is either reddish or gray and its soil is shallow because it is quite easy for lose material to escape due to its weak surface gravity. Most asteroids are carbonaceous, which is the oldest type of rock in the solar system which didn't form on either the Earth or the Moon. Most asteroids that are made of this type of rock, and so are nearly all of those located in the outer regions of the solar system. The main components of this rock is silicates, free metals, carbon, nitrogen, and amazingly as much as 21% water. Though common, its only one type out of over 30 others. Asteroids consist of at least 50 minerals and 60 elements and a few minerals are found no where but in only asteroids. Some are even known to contain small diamonds and 2143 Jimarnold is high in platinum and gold.

The death of an asteroid can happen by a number of ways. For small ones within the orbit of Mercury have a very short lifetime. It is because of the dragging affect that the solar wind and light pressure has on any low mass object. This will eventually cause such objects to spiral towards the Sun until it vaporizes. Others are destroyed when they collide with some other object such as a planet, moon, comet or by another asteroid and are smashed to smithereens. Approximately 10% of these events will result in the formation of an asteroid moon orbiting a now very jagged asteroid, and the even smaller fragments become meteoroids. 65 million years ago a three mile asteroid collided with the Earth which resulted in the extinction of 75% of the species of life, including dinosaurs. The most recent close call came in 1937 when Hermes missed our planet by less than half a million miles. In 1972 1 huge meteoroid some 20 feet in diameter passed as close as 34 miles from the Rocky Mountains before skipping back into space.

Carl Milazzo

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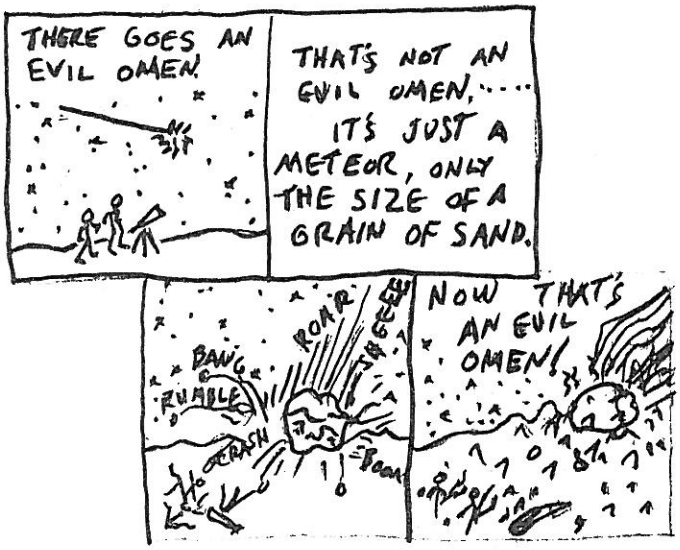

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Solar - The winter solstice will begin on December 20th at 5:51 PMEST. This is the time that the sun begins its northern progress and the days will start to become longer and the nights shorter.....

Lunar - Full Moon - November 11th
Last Quarter Moon - November 18th
New Moon - Nove ber 26th
First Quarter Moon - December 4th
Full Moon - December 11th

Last Quarter Moon - December 18th
New Moon - December 26th
First Quarter Moon - January 3rd

Stellar - If you think that the 2000 visible stars on any given dark, clear night is impressive, keep in mind that there are about two hundred billion billion stars whirling around out there. (That is 200,000,000,000,000,000,000.)

Stars can be quite fat! The largest ones have a midriff bulge of about one billion miles or about 1000 times larger than our Sun.

Planetary -

Conjunctions: Jupiter & Pluto - November 2nd at 03:51
Mercury & Pluto - November 5th at 15:08
Mercury & Jupiter - November 6th at 05:04
Mercury & Uranus - November 29th at 03:59
Mercury & Neptune - December 14th at 05:43

When ever the weather turns out to be foul and it rains for several days, remember the Giant Red Spot on Jupiter. This shifting gaseous phenomenon is about 13 thousand miles wide and a storm that is believed to have been raging for thousands of years.....

Saturn is so light that any given piece of it would float on water here on Earth.

Meteor Showers - Cepheids (new) - November 9th
Taurids (northern) - November 10th
Mu Pegasids - November 11th
Areitids - November 12th
Beilids - November 14th
Leonids - November 16th
Andromedes - November 28th
Phoenicids - December 5th
Geminids - December 13th
Ursids - December 22nd

The first recorded meteor to strike a woman was on November 30, 1954.....

Birthdays - Tycho Brahe - December 14, 1546
Isaac Newton - December 25, 1642

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! ! ! W H O O P S ! ! !

In the article 'Jupiter in 1981' in the last 'Spectrum', twice, the word 'distinct' is mis-printed 'distant'. The relevant sentences should read:

(under SEB & GRS): ...On one occassion a distinct light rift was seen within the belt....

...on four occassions a distinct deep semi-circular 'bay' was seen.....

The disc of Jupiter in the diagram has been incorrectly reproduced as circular and should be distinctly elliptical as in the original.

Ed's note: due to the reduction of the originalcopy, ellipses tend to appear more circular.

* * * * *

Observations

On September 26th at approximately 10:00 to 10:15 PMEDT, I observed a meteor move across the sky slowly and parallel to the horizon, burning bright (at least 5th magnitude), then turning reddish-yellow before it faded away. The trail was lit for a short time. Looking south, it was about 25° above the horizon and its trail was from west to east, about 65° long. It appeared long enough to have one of the members of my party call it out for the rest of us to look and observe. I would be interested to know if anyone else observed it.

David Bertuca

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Besides looking at M-27 & M-71 on September 20th, I also drew M-103 in Cassiopeia; also I observed the Double Cluster in Perseus with my 8" telescope.

On September 24th M-15 in Pegasus and M-2 in Aquarius were objects I observed.

I observed and photographed the Moon on several occassions; September 8th & 9th and October 8, 11, 12, &13th. The photos were by both negative and positive eye-piece projection. I also got up in the mornings to photograph the Moon on September 18 & 21.

Steve Desmond.

* * * * *

Answers to the QUIZ:-

1) The flmae of a standard plumber's candle seen from a distance of one mile is as bright as a star of first magnitude. The standard plumber's candle was defined around 1860 as the unit used to determine candlepower. It is officially a sperm candle 1/6th of a pound and burns up to 120 grains per hour.....

2) Variable stars are stars whose brightness is not constant. It's light changes from time to time in magnitude.

3) Intrinsic variable stars are stars whose change in brightness is not caused by an eclipsing companion star, but is due to some action within the single star itself. Such stars pulsate, growing brighter and then dimmer with astonishing regularity in most instances, and without any regard for regularity in others.

4) The length of the period of a Cepheid variable is directly related to its absolute magnitude. The longer theperiod of the star, (the length of time the star takes to go through its entire cycle of variability, from maximum to maximum) the brighter is the star.

5) Barnard's Star, in the constellation of Ophiuchus, is famous for its large proper motion or tremendous velocity in space. It is moving at about 300 miles per second, and is the star with the greatest known proper motion. From our point of view here on Earth, Barnard's star moves about 10.25 arc seconds per year. At that rate, it would take the star 352 years to change its position by one degree or twice the apparent diameter of the full moon.....

* * * * *

Instrument Section

The instrument section of the B.A.A. opened the new season with a meeting at the Museum on Friday, September 25th. There were ten section members present.

Tony Cascio brought in his polished 6 inch mirror. The figure was good but he reported that the aluminizing lab in Ithica had refused to coat it as when examined by a strong light the surface looked veiled so that it would not take a good coating.

We looked for a concentrated light source and found one in the mercury ceiling lights in the lobby. When viewed by one of these lights at a grazing angle, the surface did indeed show a cloudy appearance.

Tony hot pressed the mirror against the polishing lap and polished for about 15 minutes. The surface then looked sparkling bright by the strong light. The Museum lobby mercury ceiling lights are still another tool in our bag of tricks. A slide projector light source or a high intensity desk light are also good inspection lights.

Bob Schneider brought in a collection of refractometer parts to add to our display of gadgets. This device shows the percentage of sugar in a solution. It is used for testing soft drinks. It has a remarkable liquid prism. When a drop of liquid under test is applied to the outer surface a line of demarcationcan be seen crossing a scale graduated in percentage of sugar.

Two other mirrors were tested and found ready for aluminizing.

Our group is involved in instrumentation. This includes making telescopes and associated gadgets. Members bring their mirrors for testing; partially assembled telescopes for suggestions and various devices for discussion. We meet on the 4th Friday of the month in the Museum of Science at 7:30 PM.

Ed Lindberg.

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Who is Kurt Erland?

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Study Group

Turnout this year for the study group has NOT been as expected. The first night in September only brought out 4 members. This was the organizational meeting. We decided to start covering basic astronomy subjects.

The October meeting was about time, celestial coordinates and how astronomers measure different parameters in space such as distance and magnitude. There were only 5 members present at this meeting but even at that we had an enjoyable time. Those who weren't present missed seeing Darwin Christy's latest gadget. A device for accurately measuring angular distance. The night was fairly clear and we had a good time with this new toy.

Please try to make the next study group meeting. I will announce the topic at the November meeting.

Ken Kimble

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New Members

Shaun Hardy

Patricia Carlisle

Tristan Dilapo & Deborah Lagodna

Marilou Bebak

Adrienne Kimble
Memebership Chairperson

* * * * *

BAA Annals

5 years ago - The November-December meetings in 1976 were the first meetings in the New Science Building at Buffalo State College. Dr. Donald Botteron of the Syracuse Astronomical Society spoke on the origins of life using the newly acquired Viking Lander information as his reference. The December Christmas Party was the usual fare, Edith Geiger's amuzing candid profiles of members; Joe Provato spoke on Saturn and Jupiter and Dr. Orgren treated the BAA members to a planetarium show.

The November-December "Spectrum" included a photograph of Dr. Seville Chapman, a BAA member who died in that year and a brief article about Dr. Chapman including some of his important contributions to the group.

10 years ago - The November 1971 meeting of the BAA was addressed by Dr. Fred West who spoke on modern large reflecting telescopes. The Christmas meeting in December as you may have guessed was Edith Geiger's annual presentation. In the November-December 1971 "Spectrum" was an extremely interesting and fact filled article about the Christmas Star by Dr. Fred Price. Worth re-reading or reading for those who missed it. (You might watch for it in theJan.-Feb. 1982 issue of the 'Spectrum'.

Ed DC)

15 years ago - Ron Clippinger was the November 1966 speaker. His subject was the Golden Age of Amateur Astronomy. The Christmas meeting featured Edith's candid review and Ed and Olga Lindberg speaking of the 1965 eclipse in Thailand. The "Spectrum' back then was NOT the complete newsletter as it is now, with long feature articles and observations. It consisted mostly of meeting notices, announcements and the like.

Ken Kimble

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Editor's note:- It is so, the "Spectrum" was at one time a 'one page affair'. Past editors from the records I have show that Bruce Cook, Dick Zygmunt, Ernst Both, and Larry Carlino were before me.

Darwin Christy

* * * * *

ARTICLE CONTRIBUTIONS:-
SHAWN HARDY (A NEW MEMBER)
EDITH GEIGER
CARL MILAZZO
DAVID BERTHOA
STEVE DESMOND
ED LINDBERG
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Misleading Terms in Stellar Astronomy

There is perhaps no branch of astronomy so filled with archaic and inaccurate vocabulary as that dealing with stellar classification and evolution. For example, twenty years ago our Sun was referred to as a 'Dwarf', along with all the other stars which constitute what we today more accurately call the 'Main Sequence' (since 90% of all stars fall into this catagory of stellar classification). Even today's use of the term 'Dwarf' can be misleading, for there is no connection what soever between Red Dwarfs and White Dwarfs. Red 'Dwarfs' are actually normal, Main Swquence stars of spectral class K and M, the coolest and least luminous of the main body of the stellar population. A typical Red Dwarf might be 1/10th the size of the Sun and 1/12th as massive; its surface temperature about 3000°C cooler than our Sun's. Red Dwarfs are by far the most common type of stars in space. White Dwarfs, on the other hand, are fairly rare and extremely curious objects. They represent one of the final stages in the process of stellar evolution; their material is 'degenerate' (exceedingly dense) and they are so old that all internal production of energy has ceased. They glow only by radiating away the heat they have built-up over eons of life on the Main Sequence, somewhat akin to an electric burner continuing to glow even after it has been turned off. A typical White Dwarf would be only 1/100th the size of the Sun (no bigger than the Earth), yet very hot: more than 12,000°C, or 6000° hotter than the Sun.

Ambiguity likewise exists with the most massive stars; Red Giants are the only 'true' giants. They are very old stars which have evolved off the Main Sequence after several billion years of Hydrogen-fusion. Red Giants thus represent a fairly advanced stage in stellar evolution, whereas the so-called 'Blue Giants' are simply normal, very young Main Sequence stars of spectral class B and O. They are typically of mass comparable to Red Giants, yet smaller by roughly a factor of 10 and tens of thousands of degrees hotter.

Finally, one still finds in modern astronomy books the terms 'Early' and 'Late' type stars. The Early spectral types are the hot, blue-white stars of classes O, B, and A. The Late types are cooler yellow, orange and red stars with G, K, and M spectra. These terms are very archaic, as they refer to theories of stellar evolution discarded decades ago, in which evolutionary trajectories began at the high-temperature side of the Hertzsprung- Russell Diagram and progressed 'down' the Main Sequence to the cool end.

Shaun Hardy

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BAA Annals (cont.)

A few dots here and a few dots there.....

Can you recognize the following stellar groups called constellations.....?

Answers will be printed in the January-February 'Spectrum'.

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