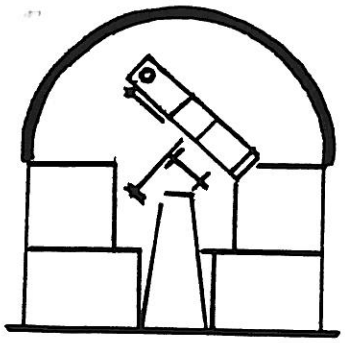

Buffalo Astronomical
Association, Inc.
Darwin Christy, Editor

THE SPECTRUM

MARCH - APRIL
1982

MARCH meeting: The March 12th meeting will begin at 7:30 P.M. in the Humbolt Room at the Buffalo Museum of Science. Our speaker will be announced at the meeting.

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(The "SPECTRUM" Deadline for the MAY-JUNE issue will be APRIL 23rd)

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? QUIZ ?

? - TRUE or FALSE - ?

1- Spectral classification has been extended to include luminosity classes as well as a temperature class....

2- The atmosphere of a giant star is very much less tenuous than that of a dwarf....

3- Stars radiate energy continuously...

4- When we consider 'main-sequence' stars, we find that the stars of a given mass have a given luminosity. This is the 'mass-luminosity'law; it implies that the energy which ultimately flows out of a star is determined by how much matter the star is made up of....

5- In the 'Hertzsprung-Russell' diagram stars are scattered uniformly all over the place....

The answers will appear elsewhere in the "SPECTRUM."

* * * * *

A few dots here and a few dots there formed the long constellation "HYDRA" in the last "SPECTRUM."

* * * * *

A hearty welcome to our new members-
Michael & Marvin Scroger (father & son)
Stephan Kramer

* * * * *

Members in B.A.A. with 20 years or more are -
Ernst Both
Gertrude & Bruce Cook
Edith Geiger
Edward Lindberg
Lillian Von Gerichten
Margaret Rabe
Walter Whyman
Walter Semerau

* * * * *

Miro Catapovic wishes to announce that he will aluminize mirrors for the members of the B.A.A free of charge. He has the facility to accommodate 16 inch mirrors. This is a good thing for those in the instrument section. Anyone interested, call Miro for an appointment.....

APRIL meeting: The April 16th meeting (changed from April 9th because of Good Friday) will begin at 7:30 P.M. in the Humbolt Room at the Buffalo Museum of Science. Our speaker will be Larry Carlino, a member of our club. His topic will be, "New Dimentions in Visual Astronomy."

* * * * *

At its January meeting, the Board of Directors voted to propose an amendment to the By-Laws of the B.A.A. This amendment can be passed by a two-thirds vote of a quorum of membership at the March 12, 1982 general meeting.

The proposed amendment deletes Article I, Section 1.B, of the By-Laws which relates to Classes of membership. It now reads: "B. Student Members - full-time students at recognized institutions of learning." It also changes Article I, Section 7, on voting privileges, by deleting the following sentence: "Student members shall have no voting privileges."

In effect, these changes eliminate the student member category. Voting will still be limited to members over the age of sixteen years and family members eighteen years and older, regardless of student status.

Special dues for students can still be set by the Board, as it does now for senior citizens under Article IV, Section 1.

Rowland A. Rupp

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MARCH-APRIL - Southern Constellation

"MUSCA" means 'The Fly' and is the only insect among the constellations and it is not visible from our latitude. It lies south of the Southern Cross (Crux). It contains three third magnitude stars and three fourth magnitude stars. It is also in a very rich field through the Milky Way. For those who ever plan to go south, might look for it directly below Crux.

The THREE ICE MEN

Three years ago, I enrolled in an Adult Education class on basic astronomy at Maryvale High School. They have a very nice small planetarium, and I began to learn star names and constellations. A few weeks later, while at my mothers house, I was pointing out some star, when she asked, "Where are the Three Ice Men?" I did not know but would try to find them. Needless to say, after much searching through many books and star charts, I could not find anything by that name. I asked my mother where she had heard about the Three Ice Men. My grandfather would often take an evening walk and return saying, "It will be getting cold soon, the Three Ice Men appeared in the sky". My grandfather came from a small town in Germany with very little education and knew very little about astronomy. He did know that as soon as the Three Ice Men appeared in the sky, the weather would turn cold, and the higher they climbed in the sky, the colder the weather would get. He also knew as long as the Three Ice Men remained in the sky, the weather would stay cold. Have you guessed who or what are my grandfather's Three Ice Men?

Doris Koestler

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The following letter was received by our Treasurer, Edith Geiger. We thought that the members would find it interesting. ---

Dear Edith,

Please find enclosed a check for $75.00. The check and letter are from Bill Delevan of the Syracuse Astronomical Society for pictures I supplied for his corporate calander. I wish to give this check to Buffalo Astronomical Soc. to be put to use for the Observatory Fund at the descresion of John Riggs to whom I owe so much.

Please pass on to my many old friends at Buffalo Astro. that I have not forgotten them but for the while, my life and dreams have changed far more drasticly than I would have ever imagined.

I look forward to seeing you again and of supporting an organization who meant so very much to me when I needed distant goals.

Your friend,
Thomas L. Dessert

* * * * *

MATCH-UP

1-Pluto	a- ♂	9-Ascending Node	i- ♈
2-Opposition	b- ♌	10-Quadrature	j- ☿
3-Libra	c- ♄	11-Pisces	k- ☆
4-Mars	d- ♀	12-Conjunction	l- ♇
5-Descending Node	e- ☌	13-Mercury	m- □
6-Star	f- ♒	14-Minor Planet	n- ☉
7-Earth	g- ♓	15-Venus	o- ☍
8-Sun	h- ⑭	MATCHES IN NEXT "SPECTRUM"	

* * * * *

STUDY GROUP

The January StudyGroup meeting had as its topic, Relativity. Members researched the subject and discussed it on a nonprofessional level. I can only pass on word from other members that it was a successful meeting as I was unable to attend.(First one in 3 years) The February meeting which will be history as this issue goes to press features a movie narrated by Bart Bok. Shaun Hardy borrowed the film from Kitt Peak Observatory.

The March meeting will be on books members have read on astronomy or related subjects. We will each briefly report on a book we have enjoyed or feel others may enjoy. It could be something you read 2 years ago if you dont have time between now and March. The Study Group meets in the Science Conference Room (271) in the New Science Bldg at Buffalo State, the Third Friday of each month. All members are welcome.

Ken Kimble

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OBSERVATORY NOTES

A number of important changes have been made at the Observatory this winter. The following should bring everyone up to date.

Until the 16th of December, plans were made to improve the clutch and motor drive of the telescope without removing the entire mount from the observatory. However, after further discussion with Bob Mayer, it was decided to disassemble the telescope mounting after all and take it back to his workshop. Bob felt that he could do a better job and put more thought into the repairs if he had it on hand in the workshop. Accordingly, a working group was called together and met at the observatory on Saturday, December 19, 1981. The group consisted of Ed Huck, Doris Koestler, Carl Milazzo, Alan Mohn, John Riggs and Gretchen Schork.

Bob received the mount on the afternoon of the 19th. By January 6, 1982, the repairs were complete. During this period, Bob worked on the mount usually every morning for two to three hours at a stretch. The total number of hours he has spent on the telescope is just one aspect of his unselfish contribution. Special new parts had to be hand made and carefully fitted into the clutch. The motor drive components had to be precisely re-aligned and pinned in position. Many subtle and sensitive adjustments were made which, except by their absence, would go unnoticed by the ordinary observer. In short, the Association owes Bob a tremendous debt of gratitude for his labor, materials and irreplacable skill in modifying and re-building the telescope.

After three postponements due to bad weather, the mounting was taken back to the observatory on Sunday, January 30. The same group of dedicated people who previously took down the mount, re-assembled it that afternoon. Many thanks must go to all for coming out on both days under less than ideal weather conditions and giving their time to the observatory.

It is not possible to fully describe all of the changes that have been made to the mount and drive. In brief, the clutch is NO LONGER adjustable. The clutch now exerts a constant pressure on the worm wheel at all times. This completely eliminates the former need to unlock and lock the clutch every time the telescope is moved to a new position.

In addition to these modifications in equipment, the schedule for public night has also been changed. After discussion with Dave Junkin, it was decided to provide public night services from March to October and reduce the number of public nights to two Saturdays a month. Public night for the coming year will be hend on the first and third Saturdays of the month. The new spring schedule for public night is as follows:

March 6 & March 20
April 3 & April 17
May 1 & May 15
June 5 & June 19

Please take note of these dates!!!

We have recently received a generous contribution from our former Observatory Director, Tom Dessert. Thank you very much, Tom! We appreciate your continued interest. The donation will make possible still further improvements.

John Riggs.

* * * * *

Nature scrubbed the Earth and left beautiful clouds of white fluffy suds in the sky.....

B.A.A. ANNALS

5 Years ago - The March 1977 meeting featured George Keene who spoke on Astrophotography. Mr. Keene is one of the prospects for another presentation to our group in the near future. The April meeting was addressed by our own Dr. Jack Mack who spoke on, "The Missing Mass." The Robert Kartyas 8 inch reflector, newly refurbished, was given a special showing.

10 Years ago - The March 1972 meeting had as its topic, believe it or not astrology as presented by Raymond manners. Dr. Fred Price was the April speaker; his topic was, "New Light on some Lunar Problems." The March-April 'SPECTRUM' featured an extensive article on polishing laps by Orrin Christy.

15 Years ago - The March meeting was given a special talk by Orrin Christy on research he had done with his Radio Telescope. Wlat Whyman spoke in April; his subject was Comet Ikeya-Seki and other comets. April also heralded the very first meeting of the NFCAAA.

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OBSERVATIONS by MEMBERS

Zero magnitude Mercury was seen on January 21st at 6:00 P.M. and was pale orange in color as seen with binoculars. That planet was 8 degrees above the horizon but barely above the trees and was in the constellation of Capricornus.

On January 29th, Venus was spotted very low in the brightly lit dawn sky at 6:45 A.M. after passing inferior conjunction nine days earlier. That very same day about 3:00 P.M., a 22 degree halo was seen around the Sun and at the same time a rare 46 degree halo.

Carl Milazzo

A few clear nights promted me to go out in the early morning hours and look for meteors. On the 22nd of January I observed 14 sporadic meteors; on January 25th, 4 meteors were seen out of Ursa Major; 2 were seen on January 26th; on January 29th I saw 11; on February 2nd there were but one visible; and on the 4th of February 2 were observed. The morning of the 29th of January, one mosquito was found flying within my jacket collar near my head. Remember, these nights were none above 5 degrees above zero in temperature.....

Darwin Christy

1-15-82 :- I found M-42 quite impressive with the cloudy formations reaching out farther than I have ever seen in photos. - M-1 was interesting.

1-21-82 :- I drew M-42 - viewed double stars, Delta Orionis and multiple stars Sigma Orionis.

2-1-82 :- Photographed my first successful Moon photo.

All of the above were through my 8 inch telescope.

Steven Desmond

Recently I had my first opportunity to see the stars of the southern hemisphere that are always below the horizon in Buffalo. I arrived in Florida in the evening of January 27th, and almost immediately located Canopus, a brilliant star almost directly south of Sirius. I found it a little disconcerting that this bright star, the third brightest in the sky, had always been there just below the horizon and yet this was the first time I'd been able to see it.

A week later I found myself at sea near the Bahamas at latitude 24° North. On the morning of February 5th, I found Rigel Kent and Hadar (& Centauri) near the horizon. Rigel Kent, the near twin of the sun, was clearly orange or yellow compared to Hadar. Despite the nearly full moon, I could make out all of Centaurus; Hadar and Rigel Kent mark its southern limit. I found it very impressive, a rivel for other spectacular constellations like Scorpius amd Orion. Unfortunately, the moon, ship's lighting, a slight haze and approaching dawn combined to prevent me from identifying other southern constellations.

I was surprised to find the moon had rotated from my new vantage point. It looked wrong to me, and at last I realized that by traveling over the curved surface of the Earth, I now viewed the moon at a different angle that caused its features to appear rotated.

Rowland Rupp

During the December meeting, I heard a few people mention they had spotted Venus in the daytime. I decided to test my observing skill and search for the planet before sunset. After several attempts, I found it on January 2nd around 4:00 P.M. Looking at the planet through binoculars, I could just make out a crescent shape, so I took my telescope outside for a better look. The crescent Venus looked like a pale. golden yellow miniature moon against the blue sky - a real beauty.

On January 27th the sky cleared for a wahile and it was nice to see some old friends again. I spent a great deal of time looking at M-42 and Delta, Epsilon and Zeta Orionis. Zeta Orionis is a very nice pair, although I could not see any nebulosity around them. I find all the Orion stars very pleasing to look at in the telescope. I scanned the Milky Way through Cassiopeia, visited with some old and fainter M Objects, returning to one of my favorites, the Double Cluster in Perseus. A new M Object was M-41 in Canis Major. By this time my telescope was covered with frost, and so was I. My last object was Sirius. I turned the eyepiece slightly out of focus and let it drift across the field. Due to the atmosphere, Sirius looked like a Fourth of July sparkler exploding into rainbow rays of colors. After looking at Sirius several times, I turned to Regulus and felt warmer knowing spring is on the way.

Doris Loestler

On January 8th, I listened to a very worthwhile program beamed worldwide from London on shortwave by the BBC : a 40 minute dramatized-documentary called, "The King's Astronomer -- A Portrait of Sir William Herschel." British actors portrayed the roles of William, his sister Caroline, and his brothers Alexander and Jakob, with dialogues extracted from personal correspondence and jpurnal entries. Through 'conversions' with the Herschels and periodic historical explanations by the commentator, Sir William's career was traced from his desertion from the Hanoverian army and emigration to England through his discovery of Uranus and appointment as Astronomer Royal. Afterwards, Herschel's real-life freat-great-granddaughter, Carline, was interviewed, and listeners were takan on a walking tour of the Herschel House Museum in Bath. Finally, several British astronomers gave commentaries on the role of Herschel as the founder of modern sidereal astronomy. This was a very polished production, and even intersperced selections of Herschel's own organ compositions between the spoken sections.

Another British astronomy program was aired on February 3rd : this one was considerably more technical, and centered on the current X-Ray investigations of ineterstimg binary stars being undertakne by Oxford's Department of Astrophysics.

Shaun Hardy

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RAFFLE

Hopefully, at one of the future meetings, there will be an 8 inch mirror donated to be raffled off. It is mostly polished out and does need to be corrected as a parabola. It would be ideal for the beginning mirro maker.

* * * * *

MURPHY'S LAW

He who is the maker of telescopes is also the manufact urer of those white fluffy clouds.....

"SPECTRUM DEADLINE - APRIL 23rd for MAY-JUNE ISSUE -----

PROFILE

Robert W. Dietrich

Buffalo born, Bob Dietrich received a good share of his education in the Buffalo area. He attended grade school at St. Paul's School in Kenmore, and won a full scholarship to Canisius High School from which he graduated in 1952. His major was science, mainly chemistry and physics. Three years of German and four years of Latin, along with math and other subjects, were included in the course. A Courier-Express paper route kept him busy during his four years in high school, but he found time to go bowling for a bit of relaxation.

After graduation he went to the University of Detroit which is a Jesuit institution. His secondary education was also under the Jesuit order, and he has great praise for its thorough and balaned education. His major in college was electrical engineering which was a five year co-operative education program, during which he worked at Bell Aerospace in Niagara Falls as part of this program. Junior and senior years were divided into three years; the junior, pre-senior and senior years. During that period, Bob would alternate between three months at school and three months at work. In 1957, Bob received his B.E.E. degree.

It is interesting to note that he knew while in grade school, that he wanted to become an electrical engineer. At that early age he enjoyed building crystal receiving sets. In high school he continued this interest by modifying radios. In later years he built Hi-Fi sets. He also built a 19" colored television set using a Heath Kit.

Bob continued his education by going to night school at the University of Buffalo (SUNYAB) and earning, in 1964, a Master of Science degree. His graduate courses had been slanted toward the electrical.

A few years later he took a review course given by the Erie-Niagara Chapter of the New York State Society of Professional Engineers at Erie Community College North as a preparation for taking the New York State Professional Engineer's License exam which Bob took and passed in 1972. After work hours, Bob also took various courses offered at Bell. With his good background in math, he enjoyed the math courses very much.

Since he graduated from the University of Detroit, he has been employed by Bell as an electronics engineer on various product lines. He initially worked on the guidance system for the Rascal missile, one of the first guided missiles, for a year or so before the project came to an end. He spent the next ten years working on the electrical design and evaluation of gyroscopes, the design being made by Bell in the sixties.

Since then he has worked on the electronics design and evaluation of some of the accelerometers that the plant made for measuring very low acceleration levels in earth-orbiting satellites. Bell is the only company in the country making accelerometers such as these, and there are only a few other places in the world where they are being built. Bell designs, builds, and tests the instrument, after which it is taken, very often by Bob, to the spacecraft contractor facility where he participates in the integration of the accelerometer into the spacecraft system. The satellite id then shipped to the launch site.

Bob has been to Vandenberg Air Force Base in Califormia and to Cape Canaveral in Florida for the prelaunch check of the accelerometer. He was involved in three launches of the Atmosphere Explorer satellites, but didn't get a chance to see the actual launches. However, he was present in the control room at Goddard Space Flight Center in Maryland for all three launches, monitoring initial flight data, and evaluating the instrument to see if it was working properly in orbit.

Many times Bob has flown from Buffalo to California to run necessary tests, and flown back to Buffalo within 34 hours. He has gone to various NASA facilities, Marshall Space Flight Center at Huntsville, Alabama; Kennedy Space Center at Cape Canaveral, and the Jet Propulsion Lab in Pasadena. While at the Jet Propulsion Lab he had the good fortune to see, on the television monitors there, live pictures taken by Voyager from Saturn. He also saw a full scale mock-up of the Voyager spacecraft. In addition to his travels to spacecraft facilities, Bob flies to many places to attend meetings connected with his work.

Bell is involved in the electronic design and evaluation of instruments for Spacelabs 2 and 3. With budget cuts, the extent of the involvement depends on the money that will be available. Bob has worked on extremely sophisticated inertial instruments that go in the Spacelab in the cargo bay of the Space Shuttle. Concerning the Space Shuttle, he comments that so much money was spent trying to get it up that now there is little money to put anything init.

Bob worked over a period of four or five years with the three Atmosphere Explorer satellites, but has not benn engaged in much business travel in the last two years as Bell now designs and turns over fully tested instruments to the customer, such as NASA, Lockheed, and the Air Force, and they take it from there, doing all of the integration.

The astronauts came to Bell during the early portion of the Apollo program because the plant had a simulator for practice landing on the moon. Bob had the opportunity to meet Neil Armstrong when he, and then Vice President Humphrey, came to Bell. That was before Neil Armstrong was aware that he would make a historic landing on the moon, but their meeting makes for a pleasant memory for Bob.

Bob has worked at Bell for 27 years, and speaks of the company as producing high performance inertial instruments of the highest quality, customed designed and critically made. He praises the people at Bell as being creative, technically excellent, very co-operative, and with whom it is nice to work. He regards his 27 years with the company to be a very rewarding and broadening experience, with the opportunity to meet many fine people.

Bob's interest in astronomy came as an outgrowth of his interest in science. He became fascinated by the missions to the planets. He enrolled in Ernst Both's astronomy course at the museum, and became aquainted with the B.A.A. through a friend. Bob became a member and thoroughly enjoys our meetings. He is a very busy man but finds time to read Sky & Telescope and the articles on astronomy that appear from time to time in scientific American. Besides write-ups on astronomy, he reads technical magazines and does some recreational reading.

He likes to listen to good music of a light classical nature, and also to the music of Chuck Mangione, Stanley Black, Peter Nero and Stan Kenton. He is a philatelist, but does not pursue this hobby in an intense manner, preferring to keep his eye on the stamps that come his way. He also enjoys bowling, bicycling and hiking when his busy schedule permits.

Bob is a very private person who talks about many things with his friends, but little about himself. He is a most sincere and pleasant gentleman who always extends a hand to help others. He is also a skillful engineer of extraordinary ability of whom we are all very proud.

Edith Geiger

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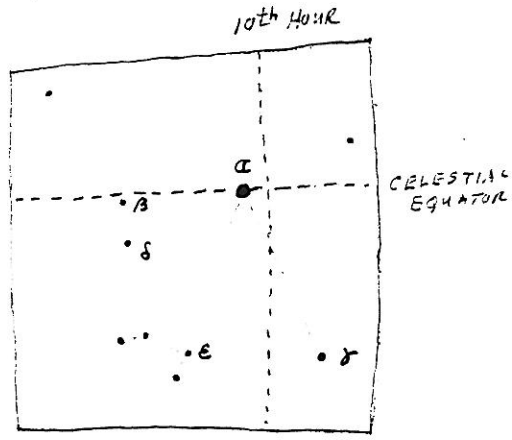
MARCH CONSTELLATION

SEXTANS (The Sextant) is a small constellation and almost insignificant lying between Hydra on the west and south; Leo on the north and east; and Crater on the east. It's brightest star, Alpha, is a fourth magnitude star lying almost on the celestial equator and near the tenth hour of right ascension. It is also 12 degrees directly south of Sirius. This should be a challenge for those who wish to find insignificant constellations. Sextans was given the name by Hevelius because he had lost many astronomical instruments in a fire and the sextant was one, which he

prized the most, lost in that fire.



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A POINT OF VIEW

Which planet offers the most viewing enjoyment? Many will certainly answer "Saturn', citing its magnificent rings for justification. Others may choose Juliter for its turbulent and shifting cloud belts and its waxing and waning Great Red Spot, or for its four bright Galilean moons and their ever varying pattern in relation to the planet. Venus, with its changing phases and size as it progresses from superior conjunction through maximum brightness until it passes between Earth and Sun, is another likely choice. Mercury and Mars seem improbable favorites.

But, wait! All these choices depend on what can be seen through the telescope. What if we had no telescope? Suppose we had to choose on the basis of the naked eye alone. Gone are the rings of Saturn, the moons of Jupiter and the phases of Venus. Now we are reduced to seeing points of light in the sky. How could we choose? Venus is still brightest, red Mars flits from constellation to constellation, Mercury is challenging, Jupiter and Saturn move slowly and sedately. But these attributes are hardly enough to inspire any strong viewing loyalties. The pre-telescopic solar system must have been somber indeed.

But we've forgotten Earth. Suppose our vantage point were changed to another planet--one of the inner planets. Surely Earth would be the winning candidate now. Why? Because of its moon--the only moon in the solar system that can be seen clearly and distinctly with the unaided eye from another planet. Think what that would add to even casual observation.

Imagine yourself on Venus viewing Earth. (Assuming you could see through sulphuric acid clouds, breathe carbon dioxide and feel comfortable at 90 atmospheres pressure and 700°F temperature.) You could see both Earth and its moon, widely separated; and because Earth is a superior planet with respect to Venus, Earth reaches oppositon and shines brightly throughout the night. How brightly? Approximately -6.5 magnitude, two whole magnitudes brighter than Venus at its greatest brilliance as seen from Earth--almost seven times brighter! Forty times the light we receive from Jupiter.

The moon is nearly five magnitudes dimmer than Earth. Yet at -1.5 magnitude it is as bright as Sirius, the brightest star. When Earth is at opposition and the moon is at its greatest separation, the angular distance between the two is a little more than 1/2 degree. That's equal to the diameter of the moon as seen from Earth. You could watch the moon in its monthly trip around the Earth, swinging from one side to the other, sometimes near Earth, sometimes far from it. Generally the moon passes above or below Earth as it switches sides. Occasionally it would pass so close to Earth it couldn't be distinguished as a separate body. It would be like viewing a conjunction twice a month, each one a little different. Here would be a planetary sight far more fascinating to the naked eye observer than any he could see on Earth.

It's been said that Galileo's telescopic observations of the motion of Jupiter's moons dealt a serious blow to the Ptolemaic system. Until then, it was thought that all heavenly bodies revolved around the Earth. This first exception was a strong point in favor of the Copericans who believed planets, including ours, revolved around the sun. One wonders if the obvious motion of the moon about Earth, so clearly visible from Venus, or from Mercury and Mars for that matter, would have led astronomers on those planets directly to the heliocentric theory. Had we evolved there, we might never have reached the conclusion that we inhabited the center of the universe; and all the conflict caused by those rival theories would never have happened.

Anonymous

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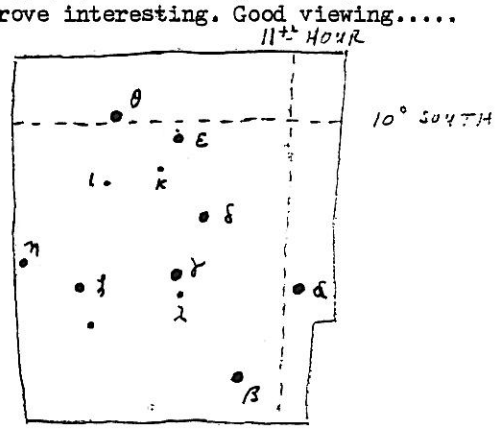
APRIL CONSTELLATION

CRATER (The CUP) is a small constellation which is bound by Leo on the north; Virgo on the north and east; Corvus on the east; Hydra on the south and west; and Sextans on the west. Four stars are of the fourth magnitude -Alpha, Beta, Gamma and Delta. These four stars form the base of the cup. The Cup is form by Eta, Zeta, Gamma, Delta, Epsilon and Theta. Like Sextans, the March constellation, it can be a challenge for those seeking to find objects of more insignificant asterisms. In Myth the 'Cup' has figured as the Cup of Apollo, Hercules, Achilles, Dido, Medea, Bacchus, Icarius and even as Noah's wine cup.

A remarkable double star Σ1474, magnitude 7 & 8, separated 71" of arc is located just 21' north of Nu Hydrae. Also Σ1530, 7.8 & 8.2 magnitude just 8 seconds apart should prove interesting. Good viewing.....



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SPY and TELL

Belated felicitations to Dr. Jack Mack who became chairman of the Geo-Science Department at Buff State last fall.

During one of the bitter cold spells in January, Orrin Christy drove to the South Grand Island bridge to take a picture of the setting sun. After taking the picture, starting back to his car, he spotted an arm waving near the water's edge of the Niagara River. On investigating, he found that a gentleman about his size had fallen into the water while chasing his hat in the wind, and had broken his leg falling through the ice in the process. Orrin, toppling into the icy water up to his knees, rescued the man from life threatening predicament, and after making splints involving frozen pant legs and towels, took the man to Kenmore Mercy Hospital, a couple of miles distant, for further treatment. A Good Samaritan award should go to Orrin for rescuing a man from a horrible fate.

John Riggs reports that in January of '81 it was so cloudy that he saw only 9 variable stars. This January he saw 58.

Congratulations to Steven Desmond who has been accepted at the Rochester Institute of Technology. He'll be entering in the fall.

Scott Taperman, a student at Buff State, was majoring in art education and design, but has changed to archaeology and anthropology. His favorite pastime is hockey.

Distinguished actor, Peter Michael Goetz, son of Irv and Esther Goetz, has been seen on TV with Mickey Rooney in the comedy, One of the Boys. If you tuned in, and he was in that particular episode, I'm sure you noticed the strong resemblance between Peter and his father.

And by the way, Poor Esther has been a victim of that horrible ailment, Shingles. She was recovering, however, and hopes the torment will soon be over. On a cheerier note, one of her charming verses appeared in Steve Weller's column,"Typewriter Ribbin'," (Buffalo Evening News) concerning the telephone situation. Keep your eye on papers, near and far, for her verses pop up all over the co8ntry.

Anthony Lang is going to night school at the University of Buffalo and is taking a calculus course. He participated in the Cross Country Skiing Marathon in Canandagua on February 7th.

Congratualations to Beverly Botto who graduated from Buff State in January with a Bachelor of Arts degree with a minor in astronomy. She is busy these days painting a space oriented mural in the basement of the Science Building. Bev helps with the planetarium shows, and also produces some of the art work for the planetarium. The current show is entitled, Planets of Doom.

Our very talented soup maker, Darwin Christy, has now added 'goose soup' to his gourmet cuisine.

Edith L. Geiger

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NFCAAA

The spring meeting will be host by the Hamilton Center, Royal Astronomical Society of Canada on May 8, 1982...

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ASTRONOMICAL HAPPENINGS

SOLAR:- The Sun crosses the equator on the 20th of March at 05:56 know as the Vernal Equinox. The little Robin said, "SPRIGG HAS CUBB." There are not eclipses of the Sun in March or April but- it will pass from Aquarius into Pisces in March and will enter Aries in April.

LUNAR:- Full Moon - March 9th & April 8th
Last Quarter Moon - March 17th & April 16th
New Moon - March 25th & April 23rd
First Quarter Moon - April 1st & April 30th
There are no eclipses in March or April.

METEOR SHOWERS:- Alpha Virginids - April 9th **
Lyrids - April 21st *****
Eta Aquarids - May 26th *****
Zeta Bootes - March 11th *
Corona Australids - March 16th *
Virvinids - March 26th ****

PLANETARY:- The GREAT LINE-UP of the Planets is to take place on March 10th. According to the Astrologers, it will be the end of the Earth.
Let me know what happened on the 11th....ed

CONJUNCTIONS:-Mars & Moon - March 11th & April 7th
Saturn & Moon - March 12th & April 8th
Jupiter & Moon - March 13th & April 9th
Uranus * Moon - March 15th & April 11th
Venus & Moon - March 21st & April 20th
Mercury & Moon - March 23rd.

OCCULTATIONS:-Neptune & Moon - March 17th & April 13th
This should be a worthwhile observation.

TIME CHANGE:- That 'stupid' time called "Eastern Daylight Savings Time commences on April 25th. One more hour of light in the evening but---one extra hour of darkness in the morning.....

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A Tale of a Tail
from the April 1968 SPECTRUM-

There is an air of excitement and foreboding when a celestial body from the far reaches of space, streams its light in the darkness af night as it passes by, on its restless journey through the heavens.

The conduct of earthlings when confronted with such events is oft times ridiculous, humorous, and even tragic. When Halley's comet last gave us a passing glance in 1910, a Cleveland paper of May 19th recounted the goings on of the night before. As one might expect, there were the usual fears and frenzies that the public worked itself into, worrying over the effect on the earth when it would pass through the comet's tail that night, and the possibility that our quivering little planet might even be struck by this awesome visitor.

The evening of May 18th found the people of Cleveland gathering early in the downtown streets, hurrying about nervously in a vague unrest, waiting for a catastrophe to strike. Police reserves were called in from outlying districts to help keep law and order as Cleveland waited for whatever the night had in store. Large audiences attended four or five street meetings in the public square to hear the preachings concerning the expected terrifying event.

Grillroom row on E. Fourth St. did a staggering business fortifying people's spirits with stiff drinks to help them face the oncoming disaster. Those who decided that the comet wasn't going to harm them after all, celebrated their relief in the same manner. Grillrooms were filled to overflowing from early evening until around three in the morning, when the happy little groups began to wander out into the night air which was filled with comet gas and pink elephants. Not only were the grills filled, but the hotels bulged with parties as the predicted doom brought a general togetherness everywhere.

People of Cleveland were told that they wouldn't be able to see the comet, not even its 10,000,000 mile tail on this night of nights, so there was great excitement around midnight at Euclid and E. Fourth St. when a wobbly astronomer with his yard-long telescope trained on a grillroom sign, shouted out thathe had sighted the comet.

This hilarious evening produced instant song-writers, one of whom jumped upon a table and got as far as, "If the comet comes I'll calm it," when his unappreciated efforts were doused in a stream of seltzer.

Flat roof-tops were crowded with spooning couples, with popular spots being the carkened chimney corners. What a night for romance!!

An account from Paris speaks of the disappointment of French astronomers who spent the night at their giant telescopes and didn't witness any startling phenomena as the earth sped through the comet's tail.

Tragedy struck in Paris, "owing to overindulgence in strong drink and underindulgence in comet study." Two roof-top sky-watchers, in different parts of the city, lost their balance and took a fatal plunge to the ground. A number of people seemed to have lost their equilibrium on this night, as many injuries were reported from folks who had fallen off low roofs. It must have been a gay evening all around the world.

In Roseville, New Jersey, it seems that a practical joker terrorized some comet watchers with his little prank. Herman C. Boehm, a chemist, took a small balloon and a considerable amount od sodium, a time fuse and a stick of dynamite, and made a contraption that rose to about a thousand feet, exploded with a gigantic roar, and ignited the sodium which fell to earth in a showery flame. The hour-long pandemonium Boehm created was finally quelled as the people were assured that the comet hadn't struck.

Well folks, that comet is due back here in 1986. Are

you prepared, or are you, too, going to spend a hilarius evening when we dash through the tail of Halley's comet??

Edith L. Geiger

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Answers

The 'Three Ice Men' are Delta, Epsilon and Zeta Orionis, or the 'Belt of Orion.'

True or False:-
1- True
2- False - 'more' rather than 'less'
3- True
4- True
5- False -'are 'NOT' scattered'is correct

Jan.-Feb. Quiz-Crypts were:-

1) ASTERISMS	2) CONSTELLATIONS
Circlet	Virgo
Head of Cetus	Taurus
Hyades	Scorpius
Jobs Coffin	Ophiuchus
Keystone	Pisces
Kids	Libra
Tea Pot	Leo
Northern Cross	Gemini
Pleiades	Cancer
Bier	Aries
Sickle	Aquarius
Square of Pegasus	Capricornus

* * * * *

There is more known about "PLUTO" than one thinks!

Pluto's 248 year orbit is the most elliptical of the planets, and it ranges from 2.7 to 4.6 billion miles from the Sun. It's elliptical path is inclined by 17 degrees, which is also the highest and passes over and within Neptune's from 1979 until 1999. That now makes Neptune the most distant, but their orbits don't intersect but pass over no closer than by 240 million miles.

Clyde Tombaugh discovered 14.8 magnitude Pluto on March 13, 1930 in Gemini, photographically with a 13 inch telescope of the Lowell Observatory near Flagstaff Arizona. Unknowingly at that time, it was first photographed on January 24, 1914 in Orion on the edge of the Milky Way as a 15.2 magnitude speck. At aphelion in 1865 Pluto was moving only ½ degree annually, and if it were to be seen back then, a 27 inch telescope would have been needed to detect it's magnitude 15.9. Now moving four degrees per year towards its 1989 perihelion in Virgo, it can be seen in a 9 inch telescope as a 13.6 magnitude world.

As early as 1955 a two tenths of a magnitude periodic variation was detected due to Pluto's rotation of 6 days 9 hours 16 minutes and 54 seconds. Only one 1,600th the amount of sunlight reaches Pluto, giving it a temperature of minus 382 degrees F and only four degrees colder at the poles. Its spin axis is tilted 57 degrees, and its north star is 4.4 magnitude Zeta Monoceros and its south star is 3.9 magnitude Beta Aquila. Pluto's 2000 mile in diameter surface was discovered to be made of dirty methane ice that reflects 45% and has a density of only 70% that of water. Pure methane ice has reflectivity of 75% and a density 50% of water. The surface gravity on Pluto is 14% of Earth's and its escape velocity is 0.75 mps. Methane ice structurally is very weak and so vertical relief of its cratered surface will be low. Its surface has become dirty from the sun decomposing the methane ice into carbon and also from the impact of comets and meteors. Pluto's mantle is made of water ice and a core of silicate rock. In 1980 a thin atmosphere (3% of Earth's) of methane was discovered, and it has been theorized that there should also be neon argon, ammonia, nitrogen and hydrogen.

Pluto's first moon, named Chiron, was discovered on -7- July 7, 1978 with the 61 inch telescope of the U.S. Naval Observatory near Flagstaff, Arizona by James Christy who is formerly from Amherst, N.Y. (no relation to Darwin). 15.2 magnitude Charon is 1,000 miles in diameter and separated by only 0,9 seconds of arc, and is believed to be made of material similar to Pluto. Charon is orbiting in retrograde 11,800 miles around Pluto, and is the only moon in a geocentric orbit in the solar system. Together they are the nearest thing to being a double planet with its 10 to 1 mass ratio and 2 to 1 size ratio. Originally Pluto had a 10 hour day, but tidal action for the past 4.5 billion years slowed it down to over 6 days. There is evidence in 1980 that Pluto has a second moon that is 100 miles in diameter and over 60,000 miles out in orbit. As seen from Pluto's surfacem the Sun appears as a point to the eye instead of a disc and of magnitude minus 19, which is 250 times brighter than our full moon. Only from half of Pluto's surface is Charon visible, as a 5 degree disc of minus 11 magnitude when full. And from Charon's surface Pluto appears 11 degrees in size and minus 13 magnitude. Starting in 1985 and ending in 1988, a series of eclipses between Pluto and its moon Charon. This will allow a very precise map to be made of one hemisphere of each of them along with an exact measurement of their size.

Carl Milazzo

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SATURN

Saturn was named after the Roman equivalent of the Greek god "Krowos" who was the mythical ruler of the universe. Perhaps it was Saturn's slow, leisurely, 29 year orbital period that qualified it for that distinction. The slowness of Saturn's transit is due, of course, to its great distance from the Sun and at 9.5 AUs from the Sun, it was the most distant planet known to the ancient astronomers. With a magnitude ranging from +0.9 to -0.4, Saturn is an easy object to locate and observe.

Saturn is the second largest of the gas giants. Its composed of 80% hydrogen, 18% helium and 2% of the heavier elements. It has a small silicate core of perhaps 3 or 4 earth masses which may be surrounded by a layer of ice about 5,000Km thick. A second layer of metallic hydrogen, about 8,000Km thick, may rest on top of the ice. Liquid molecular hydrogen constitutes the planet's major portion followed by a gaseous atmosphere.

Convections and rotational differences produce a similar banded structure as is displayed by Jupiter. Saturn's quator rotates in 10h 14m slowing down at higher latitudes until rotation exceeds 11h near the poles.

With a mass of 743.6 x Earth, Saturn's gravitational field can not compress its gases as tightly as Jupiter can. The result is a more volumeous planet with an unusually low overall dencity of 706 Kg/M^3.

In 1610, Galileo saw Saturn's ring system when they were nearly edge on, as happens twice during Saturn's orbit at 14½year intervals. The second time Galileo viewed Saturn, the rings were edge on and not visible, which confused Galileo and he could not explain the phenomenon. Credit goes to Christian Huygens who discovered the ringsin 1655 and described them as a ring of light surrounding Saturn but touching it nowhere.

Observations from Earth based telescopes have resolved Saturn's ring into a system of three rings. The outer most or"A" ring has an outer diameter of 273,000 Km. Which orbits 76,000 Km above the equatorial clouds. The "A" ring is 16,000 Km wide and is separated from the middle "B" ring by the 3,000 Km wide Cassini division. The "B" ring is 26,000 Km wide and is the brightest in the system. The 16,000 Km wide "C" ring or Crêpe ring is much less bright and its inner edge orbits just 15,000 Km above the equatorial clouds. The rings are about 10 Km thick and composed of ice or ice covered particles from 30 to 300 mm in size. Spectroscopic observations show orbital period increases with distance from the planet. The origin of the rings has been sub-

jected to considerable debate and is still undecided.

James A. Machowski

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???? DID YOU KNOW ????

"ZODIAC", the name given to the belt through which the Sun moves (Zodiacal Belt), comes from the Greek word "ZOON", meaning animal? All except one of the constellations which lies on the zodiacal belt, Libra, are named for animals, such as Taurus, the bull; Aries, the ram and Pisces the fish to name a few....

The zodiacal light was at one time called, "the false dawn?" The countries of the Near East, during their religious festivals had mistaken the light for the dawn. This also made those religious festivals timed incorrectly as they were timed to the sunrise and sunset. They occur about an hour before the true dawn and an hour after the evening dusk. The zodiacal light is caused by the small fragments of micrometeorites reflecting the Sun's light around the earth

Also that the "GEGENSCHEIN" which is fainter is also caused by the reflected light of the Sun? This is a much fainter glow than the Zodiacal light and it also occurs nearer to midnight as seen by the observer.

DPC

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A SLIGHT CHANGE OF CORONA'S STREAMER OBSERVED IN AFRICA AND INDIA AT THE TOTAL SOLAR ECLIPSE ON FEB. 16, 1980..

Masahiro YAMAGUCHI. Masaru UKAI, Mikio KAWAMURA were the observers in Africa

Shigeru MORIKUBO, Toshiyuki MINOWA, Seiichi SATOH were the observers in India

(1) The central line if this solar eclipse began off the south shore of Liberia in Atalantic Ocean at 7h 12.0m UT and it passes through the central Africa-Congo, Tanzania, Kenya. The meridian total solar eclipse was 8h 59m UT at the 48° 47'E, 0° 42'N. Afterwards the central line landed again on the west shore of India and passed through Ankola, Hubbli, Raichur, Puli, then it ended on the south west of China at 10h 34.2m UT.

The Japanese solar eclipse expeditionary party, called Hiroden tour group, is consisted of two groups. African group and Indian group. The former went to Ngomeni, 30Km north-east of Malindl, Kenya. The latter went to Raichur, Middle of plateau Decan. Each geographic position is shown in table 1.

(2) As known in (1), this total solar eclipse passed Ngomeni, Malindi Kenya (East Africa) at 8h 29m 30s UT and it passed Raichur (Middle India) at 10h 15m 6s UT. Therefore an actual time difference of total solar eclipse occurred between Ngomeni and Raichur is 1hour 45 minutes = 105 minutes. We used this time difference to observe a slight change of Corona's streamers at these two points. We laid down the same condition to the observating instruments. We used telescope, D=5cm, f=70cm, refracting equatorial telescope made in TAKAHASHI Manufactory, camera, NIKON F2, set the Radial gradient filter (named Newkurk) in this front of film plane, and the methode of direct focus, photographing the Corona. The film is plus X and the exposure time is 0.4 second

(3) Weather on the eclipse day was slightly cloudy in Africa, though very fine in India. But in Africa we could observed Diamond-ring, Bailey's beads, reddish Prominences and Corona extending all directions. Corona's shape was like a petal of sunflower and its color, that of a pearl. The Corona of this eclipse showed typical figure of the maximum stage of the sun activity.

(4)By comparing the two photographs, we know that the Corona's streamers of the West side of sun disk convesed to North direction in Africe. But the same streamer was straight in India photograph. Mr. Osamu OHGOHE, who observed this eclipse in the group of the Tokyo Science University at Raichur, India, calculated the mean velocity of the top of this streamer was 23Km/sec. Moreover, inner part of this streamer and the North-East side of sun disc, we could see conspicuous arch structure of Corona. These parts of Corona slightly changed in two photographs in Africa and India. It caused maximum stage of sun activity.

Shigeru Morikubo
森久保 茂

Table 1.

	Longitude	Latitude	Elevation
Ngomeni, Africa	$-40^{\circ}11'27"$	$-3^{\circ}0'0"$	5m
Raichur, India	$-77^{\circ}21'0"$	$+16^{\circ}12'0"$	

* * * * *

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