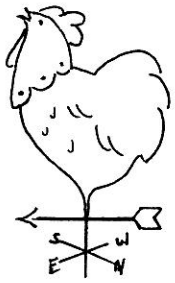
the Spectrum



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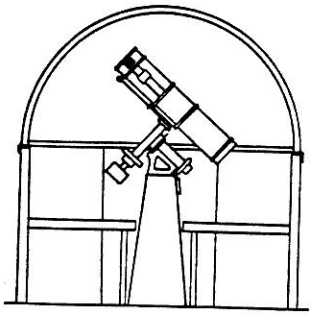

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! ! MEETING NOTICES ! !

MARCH 13, 1987 meeting will start at 7:30 PM at the Buffalo Museum of Science in the Humboldt Room. Our guest speaker will be Jim Stegner. His topic will be, "A Year in the Life of F26", which deals with the problems and triumphs he experienced while directing work on our country's first (OGO) Orbiting Geophysical Observatory. He worked on this project both in the United States and in France, and was associated with the University of Pittsburgh, Catholic University and the Observatory of Paris.

Recently, he has contributed a collection of astronomical items from yesteryear to the BAA. We hope to exhibit these at future mall shows.

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APRIL 10, 1987 meeting will be held at the Buffalo Museum of Science beginning at 7:30 PM. Our speaker for this month scheduled will be Mr. John C. Croucher, a senior materials science student at the North Campus of Erie Community College. Mr. Croucher recently won first prize in the Dow Chemical Magnesium Design Contest with an entry designed to reduce the weight and cost of a portable telescope. I'm sure this subject will be of great interest to many of our members.

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MAY 8, 1987 meeting reminder:- Our may meeting will be the 3rd annual dinner meeting. This year as last, will be at Buffalo State College. Featured will be a fine dinner followed by a presentation which tentatively, we hope, be Jim Orgren on the History of Astronomy.

The price should be about the same as last year (around $7-$8 per person) and tickets should be available starting at the March meeting. Please make plans to attend this year. Our dinner meetings are very enjoyable events. There will be another awards presentation by the College of Fellows - so---circle May 8th on your calendar and buy your tickets early.

Ken Biggie

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NFCAAA MEETING

The Elmira-Corning Astronomical Society will host the Spring meeting of the NFCAAA on Saturday, May 9, 1987, at the Museum of Glass in Corning, New York.

Registration will be from 11 AM to 2 PM at the entrance of the Glass Museum.
Museum tours will be self guided from 9 AM to 5 PM.
Coffee break, etc. will be in the lobby of the small auditorium from 1 PM to 2 PM.
AND the meeting will take place in the Small Auditorium from 2 PM to 4:30 PM.

Everyone attending will be asked to show an NFCAAA identifier, which will be sent with the final program early in April, to distinguish them from regular tourists. The registration fee of $3.00 includes a two-day pass to the museum so delegates may view the exhibits at their leisure. The small audirtorium is near the 200 inch mirror blank in the Hall of Science.

We request the names of speakers who would like to be on the program, title of talk and approximate time, hopefully 5 to 10 minutes, by March 20. We'd appreciate at least one speaker from each club. Please indicate what type of A.V. equipment you will need. ECAS will present some of the history of the 200 inch mirror blank and its journey from Corning to Mt. Palomar.

For more information contact Ed Lindberg, or one of the folowing:

Lydia Lynn	Marilyn O'Connell
2920 Olcott Road	17 Hazel St.
Big Flats, N. Y. 14814	Corning, N. Y. 14830

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? ASTRONOMY CLASSES ?

MODERN ASTRONOMY BMS 104

Rowland A. Rupp

New methods of investigation and dramatic new concepts have altered the approach taken to astronomy in recent years. Space flight, radio telescopes, the Big Bang and the

quest for extraterrestrial life have stimulated astronomical research.

This course presents a series of topics highlighting discoveries resulting from this work. It includes the investigation of the components of the solar system, the structures of galaxies, quasars, neutron stars and modern cosmology. The search for life elsewhere in the galaxy, and our prospects for finding it, will be covered.

Four members of the Buffalo Astronomical Association will present topics in their areas of interest. All are amateur astronomers who have given courses in astronomy to adults at the beginning and intermediate levels. Their individual backgrounds are diverse, including teaching, music and engineering.

Classes are on Wednesday evenings, 7:30-9:30 from March 18 - April 22. There will be six (6) classes. Non-members - $37.00 - Members - $32.00

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OBITUARY

We regret to announce the passing of Paul Noye on February 12th. He was a man of many talents and hobbies including music, skating, ham radio, mineralogy, astrophotography and cosmology. His enthusiasm for observing the heavens was well-known, as was his ability to design, improve and make telescopes with which he worked. His warmth and friendliness will be missed by all. The Buffalo Astronomical Association wishes to extend its heartfelt sympathy to the members of his family.

ANSWERS TO QUIZ

The 'match-ups' are as follows to the puzzle in the last

The "match-ups" to the puzzle in the last 'Spectrum' are as follows: A - 5; B - 7; C - 8; D - 9; E - 10; F - 4; G - 11; H - 3; I - 1; J - 12; K - 2; & L - 6.

If you like these puzzles and quizes please let the editor know----THANKS!!

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ROCHESTER CONFERENCE

Creation was the theme of a week-long conference in January sponsored by the University of Rochester. This "Rochester Conference", held during the break between semesters, was open to students and the public. I attended one session featuring lectures by astronomers Sir Fred Hoyle and Dr. Robert Jastrow, and by author Harlan Ellison.

Hoyle led off, a mistake in scheduling in my opinion because, as might be expected, he proposed unconventional views about everything. Jastrow, who followed, offered the "conventional wisdom" approach, but had to apologize throughout when he conflicted with Hoyle, which was frequently to say the least.

Hoyle introduced his lecture by stating that many theories are widely accepted by the scientific community almost on faith, and that a conference like this offered a good opportunity to voice a dissenting opinion. He first addressed the creation of the universe, noting that the Big Bang is unsubstantiated. He further commented that the inflationary theory now in vogue is essentially the same as the Steady State model--a theory he championed for so long. Unfortunately he didn't elaborate on the point. I couldn't tell if he meant that both theories accounted for the spontaneous creation of matter, or if he meant that inflation is used as a crutch to explain away some of the theoretical difficulties associated with earlier formulations of the Big Bang theory.

He also alluded to galactic evolution--a point that refutes the Steady State universe in which there are no large scale changes with time. He made a comment to the effect that recent evaluations of distant, hence old, galaxies show them to be the same in structure as nearby galaxies. As before, he did not expand on his remark. But, also as before, his contention supports his old Steady State theory.

Most of his talk dealt with biology. He is unconvinced that life arose from chemical processes here on Earth but, instead, favors the idea that life came to Earth from space. This is a revival of the theory of panspermia proposed early in this century by Arrhenius. Hoyle claims that spectra obtained from interstellar gas and dust closely correspond to those obtained from simple living things like bacteria. He added that the properties of interstellar extinction, the way in which starlight is attenuated by intervening material, are consistent with those of interstellar particles having the same size distribution as bacteria. The Earth formed from this primordial material eons ago, and it provided the source for the life we know today. Remnants of it still exist in comets in the form of viruses. Different comets contain different viruses, and as our planet intercepts the wake of these bodies we are subjected to different epidemics. I believe he attributed Whooping Cough to Comet Encke--a body that orbits the sun in a 3.5 year period.

His acceptance of panspermia leads him to the conclusion that life will appear everywhere in the universe--"in any physical niche", as he put it. When asked how he reconciled this view with the lack of evidence for life on Mars, he coolly reported that Viking's data suggested the existence of Martian life. He didn't expand on this startling statement during the meeting. However, at lunch, my daughter Patty, who was Jastrow's co-escort, heard Hoyle explain that his conclusion was formed on the basis of a recent evaluation of Viking pictures that show a greenish color on some of the Martian rocks. Hoyle and Jastrow agreed that lichen were a possible cause for this phenomenon.

In contrast to what had preceded, Jastrow expressed the conventional textbook view of all subjects. Nothing controversial here. The Big Bang is the best theory of creation we have; the universe had a birth and has evolved ever since. Jastrow commented on the anthropic principle but, like Leslie Martin's article in the January/February 1987 SPECTRUM, gave it little credence.

Two points in Jastrow's talk were particularly interesting to me. One was his view that the universe is, and was from the instant of its creation, infinite in extent. The Big Bang occurred everywhere. And yet, the entire universe we can see was infinitesimal, truly a singularity, at creation. The scope of what we see is limited by the time required for light to travel from the most distant sources since creation--about fifteen billion years. Clearly, Jastrow accepts an open universe, or at least a flat one, that will expand forever.

His final remarks were devoted to the future of intelligent life. Here on Earth he sees life forms evolving whose intellectual capacities exceed those of man, as man's intellect exceeds those of primeval worms. He suggested these intelligences will be silicon, not carbon, based. I assumed, perhaps erroneously, that he meant computer intelligence.

His expectations for other life in the galaxy were far more modest than Hoyle's. He conceded that the development of life on Earth may have arisen from events that are duplicated

nowhere else. We may be alone! On the other hand, if intelligent beings should have arisen elsewhere, he believes they will be so advanced compared to us that we will look to them like the worm he mentioned earlier.

The final speaker, Ellison, treated creation in the sense of intellectual creativity. While his entertaining talk had nothing to do with astronomy or cosmology, I sensed a greater bond between him and Hoyle in some respects than between Hoyle and Jastrow.

Rowland A. Rupp

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?!? SPY & TELL ?!?

Congratulations to Darwin Christy for being honored in a book, Meteoric Dust, by Japanese astronomer, Shigeru Morikubo. The book cites references to meteoric work done by noted astronomers. Darwin has an entire section devoted to his research in micrometeorites. This recognition is a fine tribute to Darwin for his long and patient study of these finite interplanetary particles.

Ernst Both went to Huntsville, Alabama, to purchase a 5' model of Skylab which will be installed in the Gibson Hall of Space.

John Yerger was one of the artists whose works were on display through January 20th at the exhibit, "Great Small Paintings by Ten Very Good Artists," in the Art Dialogue Gallery on 403 Delaware Avenue.

The first week in February was Catholic School Week, and Marilou Bebak's class at Annunciation School in Elma was selected by the Diocese as an outstanding example of science education.

Ken Biggie and Bill Rogers were selected as judges for the Science Fair on February 12th at the Annunciation School.

Edward Czapla, who was an Air Corps engineer gunner on B-26 bombers during WWII, was discharged in '45, after which he went to work as a repairman for the telephone company for forty years. He retired recently and is now busy remodeling the bathroom in his home.

Michael Krasner spent two weeks last fall on a quick trip to Europe visiting Paris, Amsterdam and London. He was in Paris at the height of the terrorists' bombing. While in that city he passed the Paris Observatory though he didn't have time to go inside, and because of a very tight schedule in England, he didn't get to Greenwich. One of the highlights of the trip was a visit to Stonehenge which he found impressive.

Esther Goetz is back home after spending two sessions in the hospital.

Bob Mayer was also in the hospital in December and again in February at which time he went in for surgery. He is recovering nicely.

Gert Whyman reports that though Walt had a very bad case of the flu, he is recuperating and "looks good" though he's still a little weak. Gert had a cornea operation and will be having the stitches removed soon. She will have an operation on the other eye in the future. Walt would enjoy visits from his BAA friends. He is in the Batavia Nursing Home, 257 State Street. I'm sure he would like to hear from you.

"Evenings with the Stars," the science fiction film series, will start in March at the museum.

Edith L. Geiger

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"SPECTRUM" DEADLINE

DEADLINE for the MAY-JUNE issue of the "SPECTRUM" is the APRIL meeting date, which is the 10th. The sooner I receive articles, the better. Remember--NO articles-No "SPECTRUM" !

LETTER TO THE EDITOR

Dear Mr. Christy,

As a sitter-in on last Friday's BAA meeting, I liked so much the topics of conversation that I decided to become a new member. Then when I got home, I took out The Spectrum and began reading with amazement. A very nice paper you put out, Darwin. I hope to be at the next meeting where the discussion will be cosmology. Until then, I have written a sort of rebuttal to Leslie Mattin's, "I Don't Understand This!" The structure is poor, and it may be hard to follow, but its meant to raise questions rather than inform.

Thank you much.

D. A. Czuba

Following up on Leslie Martin's delightful discourse on the anthropic principle in cosmology, I suggest a similar clever, though circumventing approach. It is clear from the evidence - subatomic entities behaving as either wave or particle according to observer intervention (i.e. observing), along with other phenomena - that we indeed have a dilemma. As an observer, man (by man I mean woman, also) hides a keen bias. The air between what we perceive, and what is, is seldom certain. Tip someone upside-down, spin her around, and her senses become confounded. In gathering data, interpreting and reporting it, so many stresses and biases inherent in everything from our nerve endings to our language, factors within and without us, make our judgements sometimes unreliable. What we perceive as an ordered household is really chaos, a neatly tossed salad, a throw of marbles. Matter makes no distinction, or so we think. The moon is a record of meteoric impacts. Does that make it an observer? Of course. Interaction is one criterion of existance. Technically though, from our standpoint anyway, only a living organism can hold the title of observer, which is stupid. We're just organic machines, reduced to logic. What are theories, then, but highly persuasive rhetoric based on logic, more finely-tuned persuasive rhetoric. Is the lack of something (a big, fat zero) virtual? What does an asymptote approach? Is radioactive half-life randomness for real?

Going back to the original proposition, I state it thus: the universe seems to be here just for us, perhaps even because of us. I have to argue against the former, although the latter, with some rlevence, remains paradoxical. The very fact that we can translate the universe raises more disturbing questions, questions we are just beginning to word. What would the world be without sentient beings like us? Does the existance of a theory instantly look out other possibilities by the proof given toward it? Will we ever close the gap between theory and reality? It would take a leap of insight, perhaps sidestepping physics. We are filled with 'ifs' with little hope of escaping the deadlocks we've drawn in physics great and small. The numbers games are just that, full of imagined meaning, fished-out coincidences. Whatever beliefs people hold, this much is true, that past is irretrievable, and furute appears nonexistent until the event, fundementally unpredictable. Sure, we can fool ourselves by elaborating with mathematics, but where do we stand at the end? We know what facts we know, that things exist as they have in our brief lifespans, have not wonked out in a flash (nor, as we suppose, come in with a bang), not at least as I see it, and apparently is quite stable despite the cries of sci-fi fanatics and the philosophical dissertations of physicists. Call it frak luck or fortuitousness that we've been evolved (or created) as is. There are going to be no answers, no story-book endings, only what by logic we plan, map out roads through hell with our crackpot theories. That's our trajedy, to be human - the only ones - to have limits. We cannot know what we have not believed. As for me, it won't deter my observing. I still read magazines, if only for opinions.

David Czuba

-- A REBUTTAL TO MY OWN ACCORD --

The great part of being alive, and therefore existing at this time, is knowing what we know. Those of you familiar

with James Burke's book, "The Day the Universe Changed", also a PBS series, will nod in general agreement. The mass proliferation of ideas and observations through the centuries, especially those since Gutenberg, have sometimes quietly, sometimes violently, shook the foundations of all we perceive about the universe. In modern times, the single contributing device to this vast societal knowledge has been the ubiquitous magnetic tape. Let me illustrate in a personal story the effect this medium of perfect memory has had on me. I happened to be a spectator at the 1985 Niagara Falls Airshow, along with twenty-thousand others, when these two Blue Angle F-4's collided, knocked wings actually, then fell a mile, touched ground and exploded, miraculously away from the crowd. Of course, much conversation and thought followed, but what surprised me most was the video tape footage televised the next day. If I saw the footage now, no doubt I would see the event differently, persuaded by its new, narrow perspective to alter my remembrance of the trajedy.

Which leads me again to say what subjective observers we are, especially in this discipline, astronomy. Let me take you back to the days of Percival Lowell. Need I say more than, well, there are no canals on Mars. But the people interpreted wrongly, from the vagueness of language, from Schiaparelli, Vague and abstract, ufo reports are on the rise. Misinformation, international or bungled, create both legends and, now and then, a good hoax. At times though, seriously, we garner conflicting data. How do we comply? How do we bring it into agreement? Are black holes a figment of our collective imagination? We haven't proven white ones, yet, though quasars make a strong possiblity. We have not seen, for that matter, spontaneous reversals in the asymmetry of the universe, except for antimatter created in the lab. We can theorize, for example, dragons, or to bring it more to date, Loch Ness monsters. But as for dragging them into the light, we come up short. We're small to these mystries we struggle to solve. We can no more solve them than we can tell it like it is.

David Czuba

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What Today's Best Amateur Astronomers are Accomplishing

In spite of the only major thing that has hindered progress in amateur astronomy, which is light pollution, todays amateur astronomer is the best in all history. Unfortunately, light pollution has encouraged some amateurs, to stay indoors on clear moonless nights, to eat doughnuts & drink coffee.

Of the 5 million amateur astronomers worldwide, less than 1% of them are involved in high quality activites, fortunately they add up to thousands of amateurs and they are very productive and wise. Their percentage has rapidly increased over the past ten years, and it is very likely to continue for at least the next ten.

In recent years, some amateur discoveries have been rare because nearly all the easily found things have been made. For example, galaxies, which didn't bother a California amateur from discovering eight galaxies with a 16 inch telescope about twelve years ago in his spare time. Another is an asteroid discovered by an amateur from Japan. While other discoveries are still very common by amateurs, almost all are done visually to this day. Supernova, nova, lunar domes, sunspot counts, meteors and new showers as well as meteorite recovery, micro-meteorites and auroras. Since the U.S. has not launched a spacecraft beyond Earth's orbit in 13 years, planetary observation is still important. Over 5 million variable star observations are made by amateurs as well as new discoveries. Some amateurs have alerted professional astronomers to a rare on-going event so they can redirect orbiting telescopes and giant ground based scopes to such phenomina. Many types of discoveries are being made such as occultations which have narrow paths and which amateurs have traveled to that location.

Some of todays amateurs are using, building and inventing equipment which is better than some professionals now have and who did not have 15 years ago. Time has been allocated to amateurs on the 94 inch Hubble Space Telescope. An amateur has organized a group that is building and operating an 18 inch space telescope. A C.C.D. imager which are 70% efficient has been built and used by an amateur in France and one in the U.S. Many image tube intensifiers have been built by amateurs (one locally) that is 18% efficient. Though photography with a cold camera and gas-hyping is only 3% efficient, the vivid colors, fine grain, film speed of ASA 1600 is far better than back around the turn of the century. Back then it was only ASA 5 on black and white with only a blue sensitivity on glass plate, and you had no choice but to develope it yourself. Amateurs are using the new tools of hand calculators and computers for many astronomical projects. Some of which are ray tracing to make superior eyepiece designs and objectives, also to control telescopes by them. Photoelectric photometers have been built by amateurs localy, a measuring engine and spectroscope for a solar telescope. Filar micrometers are built by amateurs which are useful for double star work and measurements; blink comparators are in amateur's hands which are useful for all types of celestial to be discovered. Vast improvements have been made in telescope making in recent years, many by amateurs. For example, the fusing of cellular mirror blanks to make them lighter is being done today by many amateurs. Over a dozen telescopes 30 inches and larger are being made by amateurs. Within a 100 mile radius of Buffalo there are more than a dozen telescopes 17 inches, seven that are in the 20 inch range, one which is 30 inches of aperature and one 41 inches which is just now being ground out. They are on all types of mounts; the new Dobsonian, and poncets, some with sepper motors and computer as a drive. Old favorites like the German equatorial, fork and English Yoke. Refractors as large as 11 in inchesas well as locally, as large as 7½ inches. Now there are perfect observatory designs, better finder scopes,

Continued on page 8, column 2--

STUDY SECTION REPORT

The 'Study Section' met on January 14th and the six attendees decided to change the regular meeting night to Thursday after the regular monthly club meeting and to move the meeting time forward ½ hour to 7:00 PM. Our next meeting will be February 19th....

Bill Rogers

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OBSERVATORY REPORT

As of March 1st, 1987, I am resigning as Director of the Beaver Meadow Observatory due to the demand of my work. My Galleries want more paintings so I must put more time in my work. I also have two shows coming in the Buffalo Area this spring. I enjoyed working as Director and I will miss it. I would like to thank my co-directors for their help during the past year. Also, all the members who helped out on public nights. Public nights during the past year have been large, so please offer your help in any way you can. A new cable will be installed my March, so that will end the roof problems. I also hope that more of our members will use the observatory. This summer the outside part of the observatory received a new coat of paint. I feel with the help of our Club Members, the observatory will always be an important pet of the B.A.A.

John Yerger

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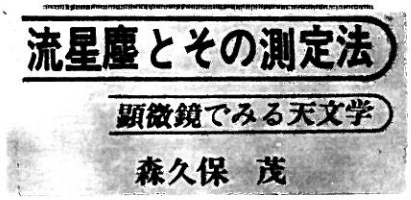
BOOK REPORT



A new book, "The Meteoric Dusts", by Shigeru Morikubo, printed in Japan, was sent to me and I believe I should write a report on said book. It is a hard cover having 97 pages, selling for 1500 Yen ($10.00), and is, of course, written mostly in Japanese. It does have one chapter in English which does explain some-what the contents of the

Continued on page 7, column 1

AN ORATION

BY DAVID RITTENHOUSE, A.M.
CONTINUED FROM THE JAN-FAB ISSUE

The infinite distances of the stars, the speed of light and, the irregularity of the Earth's spin are discovered. The recent (1769) transit of Venus accross the Sun enables us to accurately calculate the remarkable distances of the planets and then their sizes.

" How much are we then indebted to Astronomy, for correcting our ideas of the visible creation! Wanting its instruction, we should infallibly have supposed the earth by far the most important body in the universe ... But how does Astronomy change the scene!"

How insignificant wealth and power might seem to the miser and the monarch, if they could but view the earth from afar to be as small as a star.

Religion and philosophy are not incompatible, but allow belief in "...infinite wisdom and power, prompted by infinite goodness..." The doctrine of a plurality of worlds is not contrary to religion; nor that they may also be inhabited.

" How far indeed the inhabitants of the other planets may resemble man, we cannot pretend to say. If like him they were created liable to fall, yet some, if not all of them, may still retain their original rectitude. We will hope they do: the thought is comfortable.--Cease, Galileo, to improve thy optic tube; and thou, great Newton, forbear thy ardent search into the distant mysteries of nature: lest ye make unwelcome discoveries. Deprive us not of the pleasure of believing that yonder radiant orbs, are traversing in silent majesty the etherial regions [where peace, happiness, and wisdom prevail over luxery, tyranny, and evil.]"
" Happy people! and perhaps more happy still, that all communication with us is denied. We have neither corrupted you with our vices, nor injured you by violence. None of your sons and daughters, degraded from their native dignity, have been doomed to endless slavery by us in America, merely because <u>their</u> bodies may be disposed to reflect or absorb the rays of light, in a way different from <u>ours</u>. Even you inhabitants of the moon, [are safe from our tyrants]."
" Pardon these reflections; they rise not from the gloomy spirit of misanthropy ... I wish for the happiness of the whole race of mankind ..."
" ...I return to my subject... "

The happy effects of astronomy dilate the heart with universal benevolence and enlarge its views. Astronomy makes no pretenses and has no prejudices... Also, the world of the microscope is similar to the telescope in revealing Providence.

There are a number of things yet for astronomy to discover, which will undoubtedly become known. The advantages of astronomy and its enduring nature, along with the adaptable talents of men of genius, give us the best reason to expect it.
Some of these things are orbit features of comets, of the planets, and especially of our moon; the rotations of Mercury, Venus, and Saturn; the nature of sun spots; and that grand phenomenon the Milky Way - is it confined or is it continuous; and what is the relation between its millions of stars.
And the millions of stars, like our sun, which compose the Milky Way: is this not a strong indication of the astonishing system of worlds beyond worlds innumerable? What is the nature of life on them? On our own globe there are four orders: one is fixed to the earth, a second has motion on the earth, a third lives in a fluid fatal to the others, and a fourth can soar great distances in a fluid scarcely sensible to us.

" Many other and very various orders of things unknown to, and inconceivable by us, may, and probably do exist, in the unlimited regions of space. And all yonder stars innumerable, with their dependencies, may perhaps compose but the leaf of a flower in the Creator's garden ..."
" I must confess that I am not one of those sanguine spirits who seem to think, that when the withered hand of death hath drawn up the curtain of eternity, almost all distance between the creature and creator, between finite and infinite, will be annihilated."
" Were we even assured that we shall perish like the flowers of the garden, how careful would a wise man be to preserve a good conscience, during the short period of his existence; because by his very constitution, which he cannot alter, this is his pride and glory, and absolutely necessary to his present happiness; because this would insure to him at the approach of death, the soothing reflection, that he was going to restore, pure and uncorrupted, that drop of divinity within him, to the original ocean from whence it was separated."
" ...Consider that... we shall in a few years be promoted to a more exalted rank amongst the creatures of God ... and thus lay the foundation of an eternal improvement in knowledge and happiness."

[Originally printed by John Dunlap, Philadelphia,1775.
[Reprinted in Brooke Hindle, ed., *The Scientific Writings [of David Rittenhouse,* Arno Press, New York, 1980.

Steve Kramer

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ASTRONOMICAL HAPPENINGS

SOLAR:- The Sun is on its way north making the days longer and the nights shorter. There will be an eclipse of the Sun on March 29th not to be seen here in the Buffalo area. Want to try something? Take an egg and try to stand it on end on March 20th at about 10:52 PM EST. If it works then you will have seen a miracle happen at the Vernal Equinox. There will be an Annular Eclipse of the Sun on March 29th. For those who like 'eclipse chasing' can plan on going to the southern hemisphere to observe it. Its path runs through Antarctica, South America, southern Africa and parts of southern Europe & Asia.

LUNAR:- The Moon's phases will be First Quarter Moon March 7th & April 6th; Full Moon March 15th & April 13th; Last Quarter March 22nd & April 20th; and New Moon March 29th & April 27th.

LUNAR CONJUNCTIONS:- Mars on March 4th & April 2nd; Saturn on March 21st & April 18th; Uranus on March 22nd & April 18th; Neptune on March 22nd & April 19th; Venus on March 26th; Mercury on March 27th & April 19th; Jupiter on April 26th.

LUNAR OCCULTATIONS:- Venus on April 25th.

A Lunar Eclipse will occur on April 13th which will no doubt be seen throughout the United States and Canada.

PLANETARY CONJUNCTIONS:- Mercury & Jupiter - April 19th.

METEOR SHOWERS FOR MARCH & APRIL:-

For March - "Zeta Bootes" will occur on March 11th but are not one of the best. Its radiant is R.A. 14h 32m, Dec. +12° and are an irregular shower with long slow yellowish streaks of about 4th magnitude. The duration lasts about 3 days and perhaps only up to 10 may be seen hourly. Much observational data is needed.

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For April - "Alpha Virginids" will occur on April 9th and another poor shower needing much data. Its radiant is R.A. 14h 00m, Dec. -10° and is considered a stream of white 5th magnitude meteors with an hourly count of about 5. It has a duration of nearly 20 days.

Darwin Christy

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SOUTHERN CONSTELLATIONS

NORMA

NORMA is a measuring stick, or in this case representing a ruler or level. It is not the same constellation 'Norma Nilotica' as was written up in a past "Spectrum", but an asterism altered by Lacaille some time after 1751.

It was originally part of Ara and Lupus just north of Apus and later became the southern Triangle of Bayer.

In 1893, Mrs. Margaret Fleming detected a nova from a photograph taken at the Harvard Observatory near Arequipa. As it was, the nova had the spectrum of a similar nova in Auriga from the preceeding year. They are the first of their kind to have been discovered. It being of only 7th magnitude would make out of the visual range.

Norma is bordered on the north by Scorpius,& Lupus; on the east by Ara; on the south by Triangulum Australe; and on the west by Lupus & Circinus. A few items of interest are within its boundary which includes Variable Stars, IL, R, S, T & VV78. Double Stars are: Epsilon & Iota-1. A Nova: N-1893 and Open Clusters: NGC's 5999, 6031, 6067, 6087, 6134, 6152 & 6167, also H 10. Planetary Nebulae: NGC's 6164 & 6165, also Sp-1, R.A. 15h 35m Dec. -61°, R.A. 16h 15m Dec. -55°, & R.A. 16h 17m Dec. -52° and one Globular Cluster NGC 5946.

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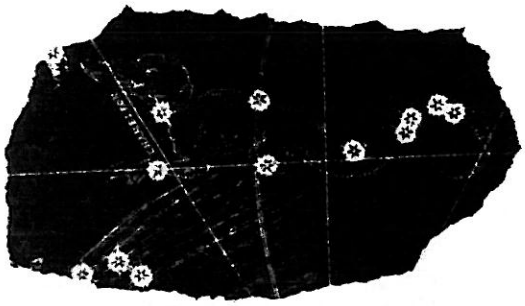
CHAMAELEON

CHAMAELEON is a lizard like animal which can change its colours in accordance with the surrounding background of color. The Chamaeleon was first figured by Bayer in 1600. It is bordered by Musca, Carina & Volans on the north; on the east by Apus; on the south by Octans; and on the west by Mensa.



Not much can be found within its border. One Planetary Nebula, NGC 3195; One Nova N-1953; two Variable Stars, R & RR; and three Double Stars, Delta-1, S & Theta.

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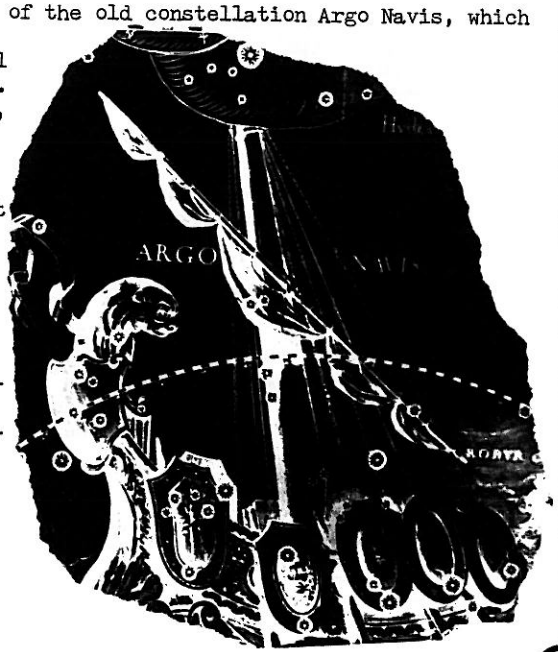
VELA

VELA, the Sail of the old constellation Argo Navis, which was separated into four small constellations. Carina, Puppis, Pyxis & VELA. Argo Navis is still recognized today but here we will only refer to VELA. This separation was made primarily by Lacaille, which is refered to as a recent astronomer.



Vela is bordered by Antlia & Pyxis on the north; on the east by Centaurs; on the south by Carina; & on the west by Puppis & Carina. Many observable objects can be found in Vela. Variable Stars include AC, AH, AI, BG, CM, CV, FY, FZ, GG, GI, GL, GO, GP, R, RS, RW, RY, RZ, S, SV, SW, SX, SY, T, U, V, WY, WZ & Z. Double Stars are A, Chi, Delta, Gamma, H, I, Mu, p, Psi, S & Z. Galaxies include NGC's 3256, 3261 & 3318 and Globular ClustersNGC 3201 as well as Planetary Nebulae NGC's 2626, 2792 & 3132. Open Clusters are I,2391 - I,2395 - I, 2488 - H3 - H4 and NGC's 2547, 2659, 2660, 2670, 2671, 2910, 2925, 2972, 3033, 3105 & 3228.

Darwin Christy

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ASTRONOMER FROM THE PAST

GALLE, Johann Gottfried

JOHANN GOTTFRIED GALLE was a German Astronomer who was born in Pabsthaus, Prussia on June 9, 1812. He died in Potsdam on July 11, 1910 at the ripe old age of 98.

He studied natural sciences and mathematics in Berlin 1830-1833; discovering three comets in 1839-1840 and was the first to observe the planet Neptune on September 23, 1846.

In 1851 he became director of the observatory in Breslau and professor of astronomy in Breslau University. In 1875 he advocated planetoid observations to determine the solar parallax.

Among his published works include:- "Grunezuge der Schlesischen Klimatologue" (Breslau 1857); "Uber Eine Verbesserung der Planetenelemente" (Breslau 1858); "Ueber Bestimmung der Sonnenparallaxe Aus Korrespondierenden Beobachtungen der Flora im Oktober und November 1873" (Breslau 1875); Mitteilungen der Breslauer Sternwarte" (Breslau 1879); & "Verziechnis der Elemente der Bisher Berechneten Kometenbahnan"(Leipzig 1894).

Darwin Christy

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NEW MEMBERS

Let's welcome Leonard C. Chrosniak

- - - - -

** OBSERVATIONS **

1) December 11-12 I observed Nova Andromeda 1986. It was fairly bright at magnitude 7.4, located in a nice rich starfield, this nova possesses a pale yellow color tint. By late December, however, the Nova faded quite rapidly attaining magnitude 12.1. This fading halted during late January after which some minor flaring and nightly fluctuations have occurred.

2) January 24-25 I observed Hubble's variable nebula, NGC-2261. At the apex of this rather conic shaped nebula lies variable star 'R' Monocerotis. Over time as this star brightens and fades the nebula itself varies in both size and brightness. This night 'R' Monocerotis looks to shine at magnitude 12.5.

3) January 27-28 I observed dwarf Nova 'U' Geminorum at maximum light, magnitude 9.3. Maximum light was sustained until the night of February 4-5 after which an unususally slow fading back to minimum light has occurred, "U" Geminorum being magnitude 12.4 as of February 9-10.

Continued on page 7, column 2---

BOOK REPORT continued--

book. Although I am not well versed in Japanese, do have enough knowledge to read some of its contents. There is one advantage I have, that is the understanding of 'micro-meteorites'.

In the book, he has reference to some well known astronomers who have researched meteors and meteorites. Those persons are H. H. Ninninger, J. Davis Buddhe, H. E. Landsberg and Nordenskiold. He also has refernce to the finds of the author of this book report, making me very proud to have been picked as one of the recipients in his book. He not only mentions some of my finds, but my theories, including a late report of the correlation between meteoric fall and the "Jet Stream", a subject not yet proven.

The book is well written describing how to collect or gather meteoric dusts and observing them in a microscope. It tells how to determine what these finite objects look like. It not only explains it, but is very well illustrated with both drawings and photographs. Charts and diagrams also enhance the pages, showing the number of finds (counts per centimeter squared) as well as the sizes of the dusts.

The types of microscopes used to observe meteorics is described, as is the powers at which they are used. Both optical and electronic microscopes are explained in the application to determine these finite objects, both cosmic (celestial) dusts and pseudo (industrial) wastes.

Whether or not this book is to be translated into English, it is still one book which should be on the shelves with other astronomy books. It is a book on one particular part of astronomy like others are and will be.

Darwin Christy

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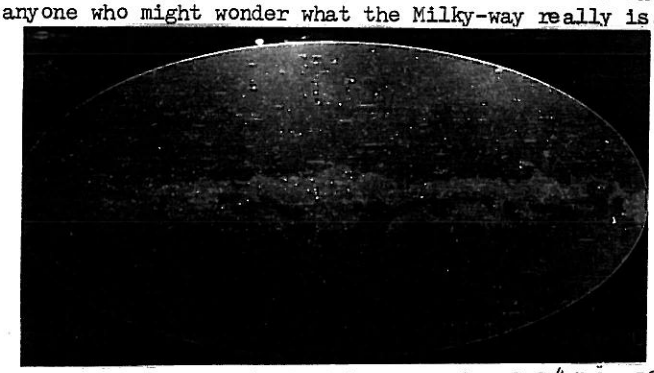
! ! CHART REPORT ! !

This is not a book report, but a chart report. I received from Astromedia a beautiful chart of the skies through our Milky-Way. It measures 36" by 68" and has a rich blue background with a lighter blue area of the Milky-Way. It has the many stars down to magnitude 6 as well as many galaxies, clusters and nebulae throuhgout. The practicalities are not for one to use to find the stars at the telescope, but it makes a beautiful wall chart to be shown to anyone who might wonder what the Milky-way really is.



It comes in a very sturdy tube measuring 3 3/4" by 38" with 1/4" thick walls. It is priced at $16.95 which is not too much for these times.

Darwin Christy

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FOR SALE

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A 13 inch f:4.5 Coulter Dobsonian telescope. It includes a 25 mm eyepiece, 10 x 50 finderscope and a mirror case--- Asking $400. Contact Carl Milazzo - 688-2170

* * * * *

For early morning observers there is also the northern hemisphere's brightest current nova. 8th magnitude Nova Herculis 1987. This star can be spotted at 1950 coordinates R.A. 18h 41m & Dec. +15° 16'.

Michael Idem

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The peak of the Quadrantid Meteor shower was on Jnauray 3rd, and locally it was clear, for the first time in 16 years. I was at our club's Beaver Meadow Observatory, where it was 2 degrees Fahrenheit, observing and doing astro-photography. The Quadrantids radiant is on the border of Draco & Bootes. Most were blue but many others were white or yellow and moved swiftly leaving trails usually 5 degrees long. The total number per hour was about 40 and usually 3 in one minute of time, followed by none at all for the next 5 minutes. Most of the brightest meteors were after midnight which then makes it January 4th. At 12:17 AM a minus one white meteor, $\frac{1}{4}$ sec., six degrees long in the southern part of Canis Major; at 2:10 AM a minus 3 meteor, blue seven degrees long lasting $\frac{1}{2}$ sec. in Virgo, 10 degrees north of Spica; at 2:55 AM a plus one yellow mwteor in Hydra near the star Alphard traveled 30 degrees in a $\frac{1}{2}$ second, left a glow for a secand and a half.

On January 25th the open cluster M-46 in Puppis was seen with my jointly owned 26 inch Dobsonian scope with a UHC nebula filter. It was about a half a degree in diameter containing 200 stars 11th magnitude and fainter. Three quarters out from it's center, towards the north is a planetary nebula that is ring shaped like M-57 and is of the same size. It's catalogued NGC 2438, and with the 26 inch and filter the surface brightness looked the same as M-57 when viewed with a 12 inch scope without a filter.

Also that night the galaxy cluster, Stephen's Quintet in Pegasus, of which NGC 7320 is the largest and brightest at +13.2 magnitude was observed. It's outer oval half is of low surface brightness, and centered is a bright hub. The next most obvious is a pair that is barely resolveable as two interacting galaxies of this compact group, which are NGC 7318A & 7318B. They have a bright hub and are fuzzy slightly along one axis. NGC 7319 is more difficult to see because of a bright star near it, the galaxy is fuzzy all along it's perimeter and is Magnitude 13.7. The most difficult to detect was NGC 7317 which is magnitude 15.2 where it's small center part is just a faint smudge.

On February 4th, the variable star Mira in Cetus was seen near it's maximum of 3rd magnitude and reddish with binoculars. It is 9th magnitude 200 days earlier and invisible to the naked eye for about 4 months.

The ellusive planet Mercury was spotted with binoculars at dusk on the W.S.W. horizon on February 9th and was zero magnitude but dim because of haze.

Carl Milazzo

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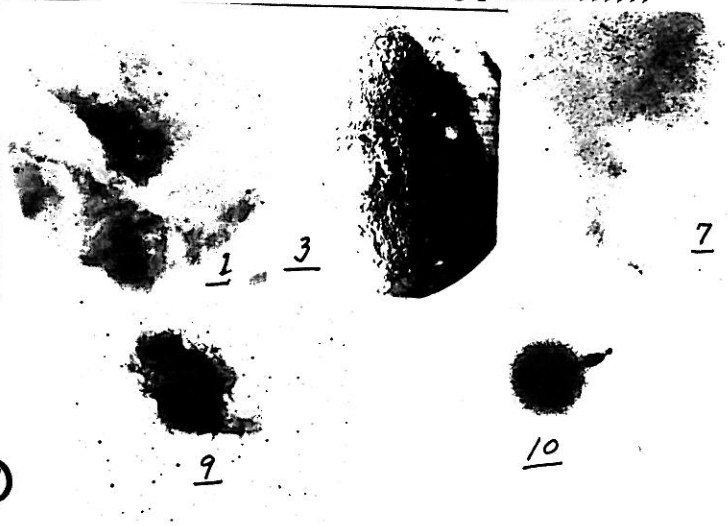
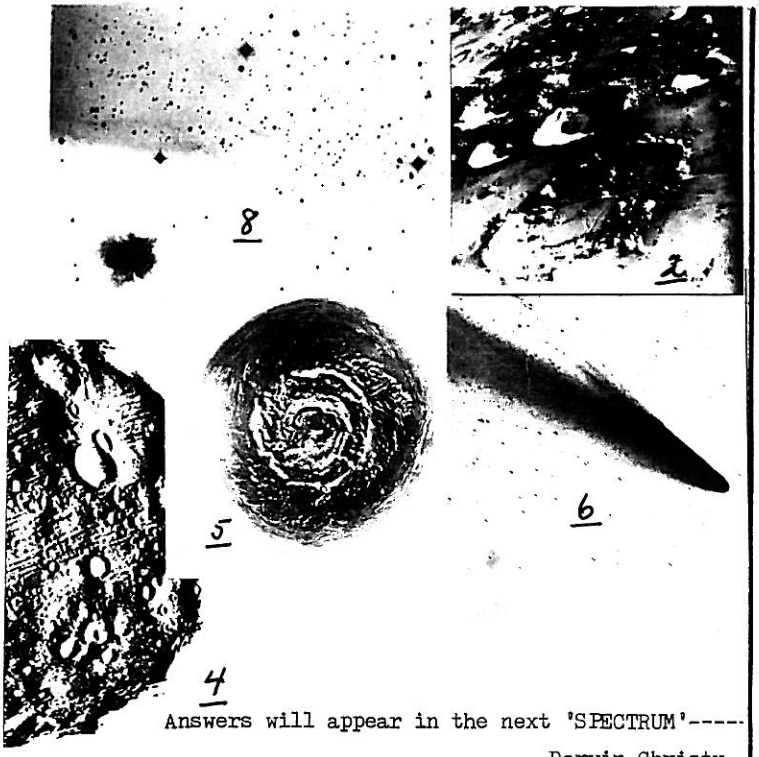
Can you identify the following pictures??????





Answers will appear in the next 'SPECTRUM'-----

Darwin Christy

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— ACKNOWLEDGEMENTS —

Edith Geiger
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Bill Rogers
John Yerger
Darwin Christy
Steve Kramer
Doris Koestler

auromatic guiders, nebula filters and amateur radio telescopes.

Observing can be done for scientific research or for the sheer beauty and mystry of the many kinds of objects that make up the Universe. Anything from the colors of double stars or the Orion Nebula to seeing the light of a quasar, billions of light years in distance. One can make drawings and sketches of views through the eyepiece. Available today are many aids such as numberous charts, catalogues, magazines and books.

Communication has helped speed up amateur programs, such as the many types of alert bulletins, magazines, regional and national conventions as well as star parties, eclipse cruises, etc. Amateur clubs, observatories, telescopes and amateur scientific organizations have all acted as a catalyst. 50 years ago less than half a dozen amateurs could find Uranus or Neptune; back then a challenge was to see t the nebulosity associated with the Pleiades cluster or the entire Messier list. Today, it is common for amateurs to see hundreds of deep sky objects beyond that list of 108. Challenges for today's amateurs is the California Nebula, distant super cluster of galaxies and the Cassiopeia-A super nova remnant.

Carl Milazzo

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* THE SPECTRUM *

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