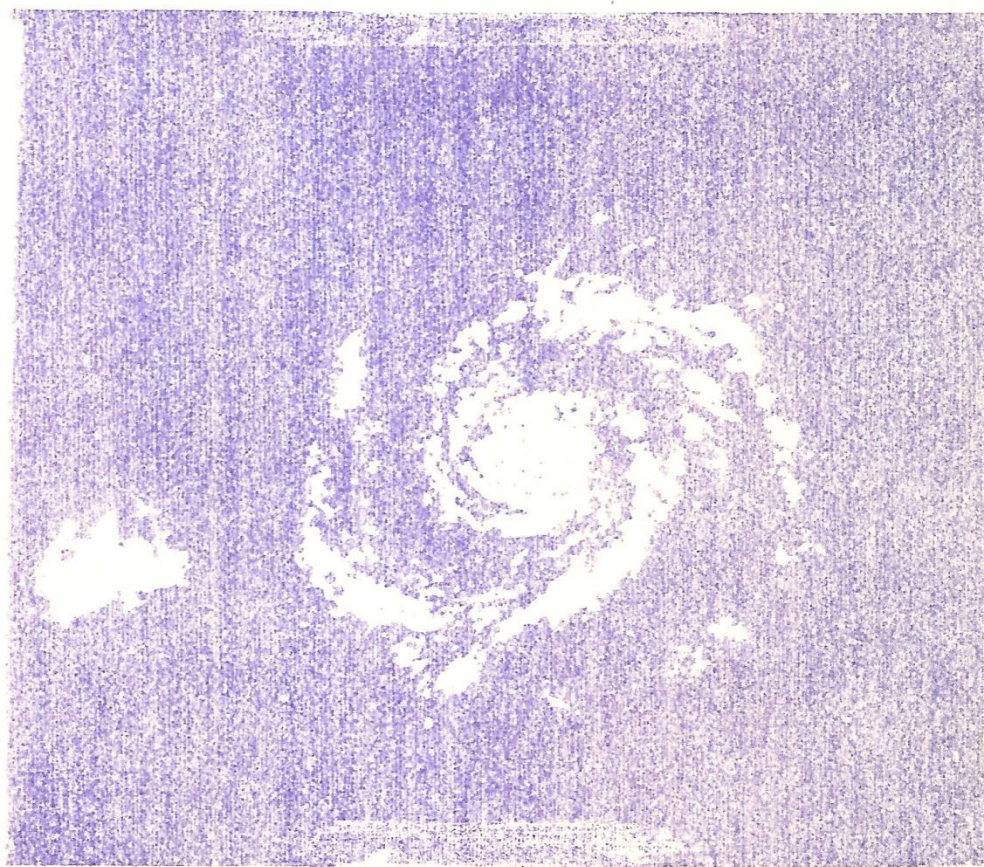


WASP



Sept 1971

SEPTEMBER, 1971

COVER – M51 CANES VENATICI

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The Warren Astronomical Society Paper (W.A.S.P.) is published monthly by the Warren Astronomical Society as a privilege of membership. Contributions are always welcome.

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* * * * *

SALUTE OF THE MONTH

Mr. Pete Kwentus and Mr. Paul Strong are to be recognized for their recent work and effort in helping the club. Mr. Kwentus has been a stand-out for his participating in nearly every one of the group requests and star parties. He has brought his scope every time and has always been kind enough to offer members a ride if they needed one. Each time his son, Ron, has come to be of assistance. For all of this, we thank you both.

Mr. Paul Strong has got to be complimented for his friendliness, and the kind offer of having us move from Warren Lincoln High School to Macomb College. This move will help the club in more ways than one.

He first came to us, giving a talk on "Coronal Structure of the Sun". He later was kind enough to give a talk at the Great Lakes Regional Convention. Of course, we all eagerly said he was from the Warren Astronomical Society when asked what club he was from (This was due to the fact that no W.A.S. member gave a paper).

For all this and even more not mentioned – we thank you.

WINTER IS COMING!

Yes fellow members, winter is coming, as inevitable as the rising sun. What does this mean? In Michigan it means COLD as users of the Stargate Observatory well know. Our observatory has a concrete floor. And, as cement is an excellent conductor of heat, the cold floor of Stargate quickly freezes one's feet. It has been proposed that we build a secondary wood floor to act as an insulator. Hopefully, this will be voted on at the September general meeting.

Regardless, there are many things to be done at ~~our~~ YOUR observatory. In order to get these things done we need volunteers to help then. If you are interested, please contact Frank McCullough (778-6022) or me, Ken Wilson (268-9337).

Kenneth Wilson

Messier Contest AND Campout

There will be a MESSIER CONTEST held at Bald Mountain, September 24th or 25th, which ever night is clear. Last year's winners were Ken Wilson and Walter Roudebush, in that order. Again, there will be a 1st and 2nd place prize. Entry fee this year is 60¢ for men and 30¢ for women. All objects are listed in this issue of the WASP. This gives everyone a week to study up on the objects. ALSO!

That weekend of the 24th, 25th, and 26th the Warren Astronomical Society will hold its #3rd campout of the year/ So let's see everyone there.

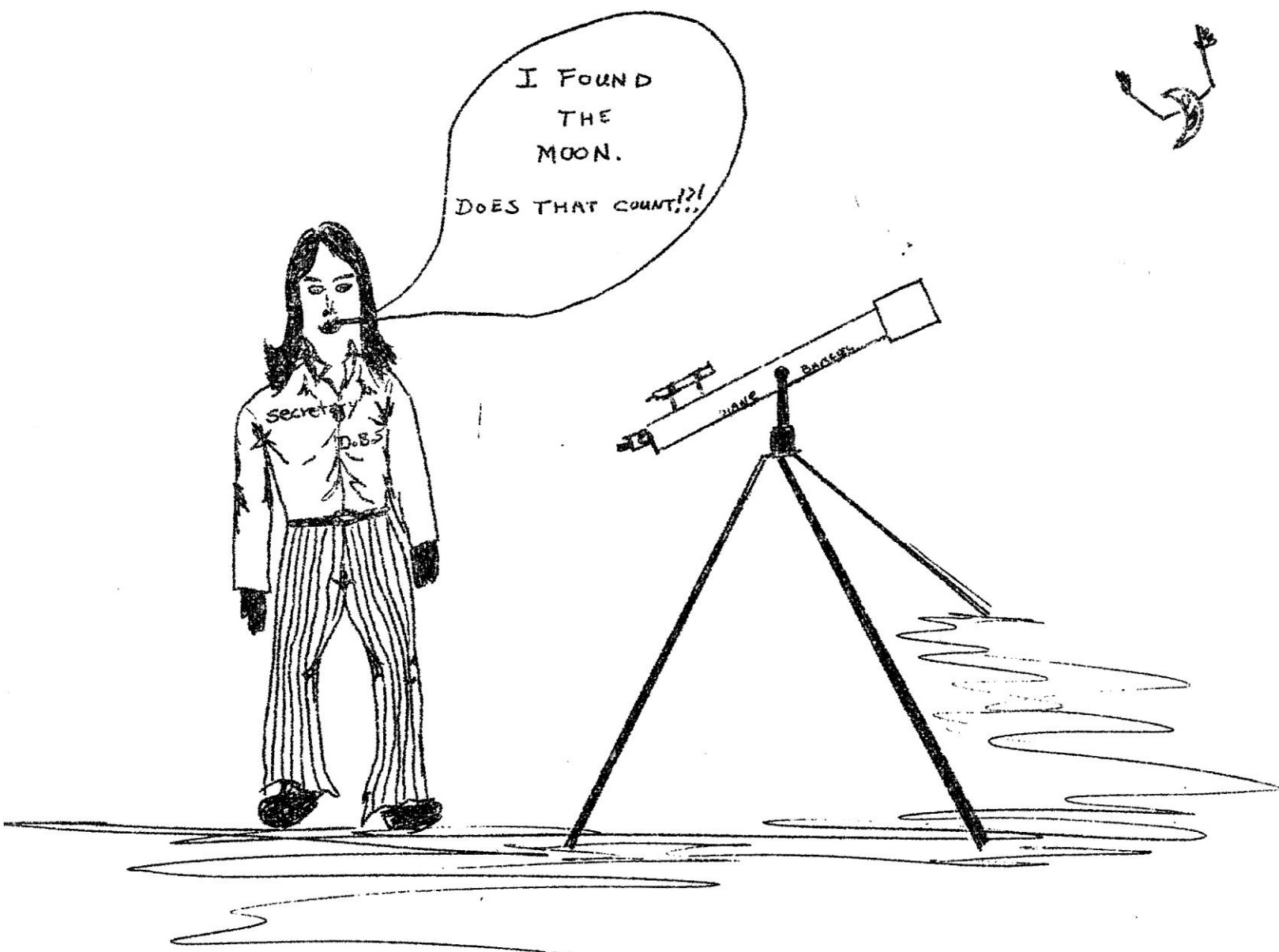
RULES for MESSIER CONTEST

1. Must be 3 years or older and no one over 140.
2. No R.F.T.s or BINOCULARS allowed.
3. Referee must approve finding before going to next object.
4. Any club or individual is eligible to participate.
5. Contestants may work as a team of two if desired, but only one person will operate eyepiece at all times.
6. There are no restrictions on objective size.
7. All boys will begin at the same time; girls that participate will be given a two minute handicap.
8. Contest ends when at least finish. If a third person finishes his name will be mentioned at the next W.A.S. meeting for honorable mention and he will receive two issues of the W.A.S.P. without even asking for another.
9. All trophies will be presented at the next W.A.S. meeting. If you are an out-of-towner, the trophy will be sent along with a copy of the W.A.S.P.

Messier Contest Objects

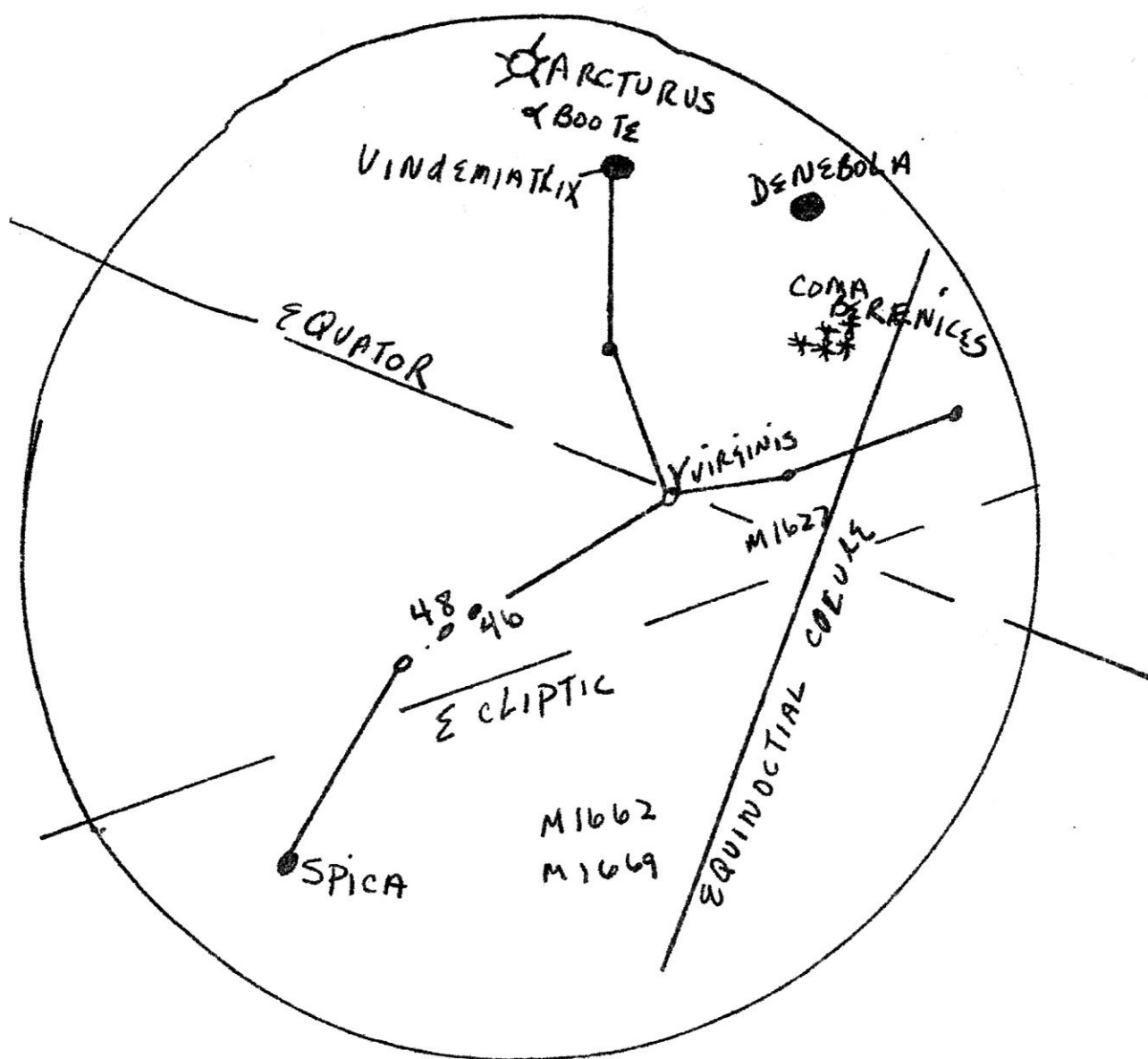
- ① M-56 GLOBULAR CLUSTER IN LYRA — 8th MAGNITUDE
 - ② M-15 GLOBULAR " " PEGASUS — 6th MAG.
 - ③ M-2 GLOBULAR " " AQUARIUS — 6th MAG.
 - ④ (CHOICE of M-76 or M-33) or (M-92 for telescopes UNDER 6" ONLY) ★
MUST BE FOUND BY 6" or more
 - ⑤ M-34 OPEN CLUSTER IN PERSEUS — 6th MAG.
-

(★ M-76 PLANETARY NEBULA IN PERSEUS — 12th MAG.
M-33 GALAXY IN TRIANGULUM — 7th MAG.
M-92 GLOBULAR CLUSTER IN HERCULES — 6th MAG.)



CONSTELLATION OF THE MONTH

VIRGO 132995



Excuse the lack of NGC objects, Messier Objects, objects in general; however, the author was and is in the process of moving and all the reference books are hidden somewhere.

I have never seen Virgo, however, one may locate it from drawing a line from Antares in the Scorpion, through Librae, prolonged a little over 20° which strikes the first magnitude star, Spica, the brightest star in the constellation Virgo. Spica is about 30° southwest of Arcturus in Bootes. The stars Arcturus, Cor Caroli, Denebola, and Spica form a figure about 50° in length, called the "Diamond of Virgo".

γ Virginis is a famous double star, and in 1756, the distance between the components was 6". In 1836, the two stars were so close together that they could not be separated with the largest telescopes. Now the stars are again about 6" apart and the distance between them is widening. This star is best observed in the twilight or moonlight. Its period of revolution is 171 years.

The "♆" locates the nebula (galaxy - ed.) NGC 4762 which resembles a paper kite and is grouped with three stars.

In many ways most of this sign's time will be fortuitous, indications of a lessening pressure and more logical attitude. Mars and Mercury go direct, allowing us some cleanup time, some real achievements. Some extravagance or element of the ridiculous intrudes and we all regain our senses and enjoy thinking again.

In the official world of reality: They and We take new forms, dramatic appeals actually lead to communication and some chance of achieving a goal. Calm justice and the urge to act fairly takes over mid-sign. Quite a lot of fun, higher education should go through a radical change, with a discovery being made that lower education really needs a boost now.

BORN UNDER VIRGO

Poet-	Coleridge
Painter-	Arp
Author-	D. H. Lawrence
Star-	Greta Garbo
Composer-	Shostakovitch
Head of State-	Elizabeth I
Philosopher-	John Locke

Wit- Robert Benchley



THIS CONSTELLATION
IS NOT UP - DO
NOT LOOK FOR
IT NOW!

PRIVATE

This road reserved for LARC personnel ONLY beyond this point.

KEEP OUT

The aesthetic considerations of the architecture and landscaping of the Lindheimer Astronomical Research Center are very likely among the finest in observatory installations. That is to say, it's a very nice looking observatory.

Extending about a half-mile into Lake Michigan from the beach at Northwestern University in Evanston, Ill., is a peninsula at the end of which the double-domed structure rises 150 feet through a maze of structural supports, resembling the entrapped victim of an enormous web woven by some deranged giant spider.

At six a.m. the grey waves lap the flagstone piled protectively around the base of the peninsula as a patch of clear sky glows whitely in the northeast and the heavy overcast begins to brighten, seemingly motionless in the air above. Where the sun has risen in the east the sky and water meet, but are indistinguishable in their grayness.

At the end of the road out to the observatory are two enormous pillars of concrete and steel straddling the tiny peninsula, a contemporary colossus atop which we see the familiar white hemispheres.

The smaller of the two domes, its ribbing now soiled and discolored, houses a 16-inch Cassegrainian so heavily burdened with spectrometers, photometers, automatic focusing motors, drives, and other gadgetry, it resembles part of a machine I once saw used to make ice cream in 32 different flavors.

In the other observatory joined by a corridor is either a 40 or a 48-inch reflector (I can't recall exactly) which would be impressive alone except for an incredibly large counterweight which looks like something that could be used to crush trailer trucks into steel cubes a foot square. An impressive view of the lake lashing the rocks 150 feet directly below is obtained through the grating of the catwalk circling the exterior circumference of the building; a pleasant walk, if you happen to be a cat.

Down and Out in Dixieland

Before visiting the LARC in the northern suburbs of Chicago, I attended the '71 Astronomical League - ALPO Convention at Southwestern University in Memphis, Tennessee. During the four-day gathering last month, many uninteresting and mediocre papers were presented (none, however approaching the high level of philosophical perversion of the Great Lakes Regional Cosmological Confusion) along with many other very interesting ones. My favorites were among the following: (4 stars-BEST; 3 stars-VERY INTERESTING; 2 stars-ALSO INTERESTING; 1 star-BETTER THAN MOST)

“Axis Orientations of Nearby Stars.” by Joeseeph Kis (*)

An original and well-researched discussion of theories concerning the distribution in space of nearby stars, their motions, and associations. Mr. Kis discovered patterns while examining three dimensional representations of nearby stars that suggest many of them may be in separate associations that all seem to be converging on the sun.

“Some New Optical Tests for the Amateur.” by Robert E. Cox ()**

In the near future, says the Sky & Telescope author of "Gleanings for ATM's," many new optical tests now being perfected will be made available to the amateur beyond the standard Ronchi and Foucault tests. With a modified Ronchi grating of parabolic slits, your mirror is indicated as having the correct parabolic curve when the bands appear straight up and down through the tester, instead of vice versa in the twisting test. Also discussed was the present and future applications of lasers in the alignment and testing of optical systems.

“Black and White Holes in Space.” by Dr, Ernest Denning, Univ. of Georgia ()**

In style and content the professor presented his paper to the gathered astronomers as if giving a lecture to his students in under-graduate astrophysics. His illustrated talk was informative and elucidating but resembled a digest of articles from Time, Physics Today, Science, and Scientific American. The important questions that point the direction of future research were presented and clarified. By the way, 'white holes' are merely the antimatter counterparts of the black ones.

“The Shadow of the Moon in the Sky - Total Solar Eclipses” by William Glenn (*)**

Although not really a paper, the audience examined with Mr. Glenn an excellent series of photos, by himself and others, showing the appearance and changing shape of the moon's shadow racing through the atmosphere during two eclipses. The variety of shapes (from circular to ellipsoidal) generated by eclipses at different elevations from the horizon were illustrated in what are certainly some of the strangest and most beautiful photos yet taken of shadow phenomena.

“Applications of Occultation Observations.” by Davin W. Dunham (*)

Although I did not hear this talk, I mention it since Mr. Bunham feels occult observations of such significance as to devote nearly all his time to their encouragement. He has become the central headquarters and authority for those observation compilations in North America. As the sole W.A.S. representative at the convention, I was endowed by him with a mass of Information sheets, observation forms and computed timing predictions for Ann Arbor and Ypsilanti stations for occultations through next January. Frank McCullough has these.

“On the Decay of Short-Period Comets.” by Charles S. Morris (**)**

Charley Morris is a D.A.S. junior, attends Michigan State University, and has become the orbit computer and predictor of the ALPO Comets Section during the past year. His was not the most provocative paper at the convention, nor was it probably the most significant. His paper, however, above all was an effort of the will to discovery and a product of tireless and creative scientific research; both elements of dynamic science at work, the special value of which is not what it makes of the world, but what it makes of the observer.

While examining and comparing the orbits of short-period comets (of which there have been many recently), Charles noted significant similarities in the decay period of these comets in their orbits about the sun. From this, he constructed a hypothesis describing 'fields of decay' that short-period comet orbits pass through in areas on either side of the sun in which their greatest rate of decay seems to occur. Then, from known orbital elements, the decay rates of new comets may perhaps be predicted with greater accuracy than at present. And though his ideas remain to be tested, the formidable backlog of equations and derivations presented to show how the theory was obtained evidences that all things are possible for those determined in purpose and clear in thought -- even the stars.

The other highlight of the convention, for me, was the small but useful meeting of the ALPO Comets Section. Two men (John Bottle and what's-his-name) who are the only known full-time comet hunters in America discussed how their observations are made, their high-powered binoculars mounted in rotating observatories, and the organization and techniques used by the famous Japanese comet seekers with whom they correspond.

Next we saw the most spectacular and incredibly detailed slides of Comet Bennett taken in this country during its appearance. Photos showing the multiple structural details in the swirling triple-headed and fan-tailed comet which everyone at the meeting had seen, but now are not so sure they had.

The meeting closed following a discussion by Charles Morris of the equations and programs used in calculating the orbit and magnitudes of comets.

Looking back through the proceedings of past conventions, it appears that whenever the Astronomical League convention is held in conjunction with that of the ALPO or other organizations from the western states, a superior convention results. That is to say, the papers will be more interesting, there will be more of them, and many of the notable pros and amateurs from the west attend.

At present, the farthest west the A.L. has gone to meet with the ALPO and Western Amateur Astronomers has been Denver. However, it is as yet difficult to guess what the result and attendance of next year's convention will be at the selected site. The 1972 convention is in Seattle.

Chris Edsall

OBSERVATIONAL ASTRONOMY

by

Frank McCullough

On the evening of August 23rd at the Stargate Observatory, I had an excellent, cool, crisp night. It was one of the best nights we have had in almost two years. I had just received my new tripod mount with clock drive, so I decided I would try it out with my 6" reflector. I was not able to use my clock drive, but I was able to take advantage of the clear moonless night.

Dave Ther and I stuck around a little later that night so we could record a few more Messier objects for our collection. Dave had just returned from Wyoming and had knocked most of the objects off with his 6" R.F.T. Myself I am not blessed with such an instrument and have to search painstakingly with my 6" f8 Newtonian reflector. Yet those are some things my scope can do that an R.F.T. can't (not many more though). The first thing I found was the large galaxy, M-33.

Dave and I both found it in 7x35 binoculars. The thing is because of its size and low surface brightness it is a troublemaker to find. We gave it a try and luckily I found it with little difficulty (the sign of a good night.) The galaxy appeared to fit in my 18mm eyepiece. It gave me the impression of a face-on galaxy with faint breaks on the outer part of the galaxy. It is hard to say whether it was lane structure because of the object being so diffused in appearance.

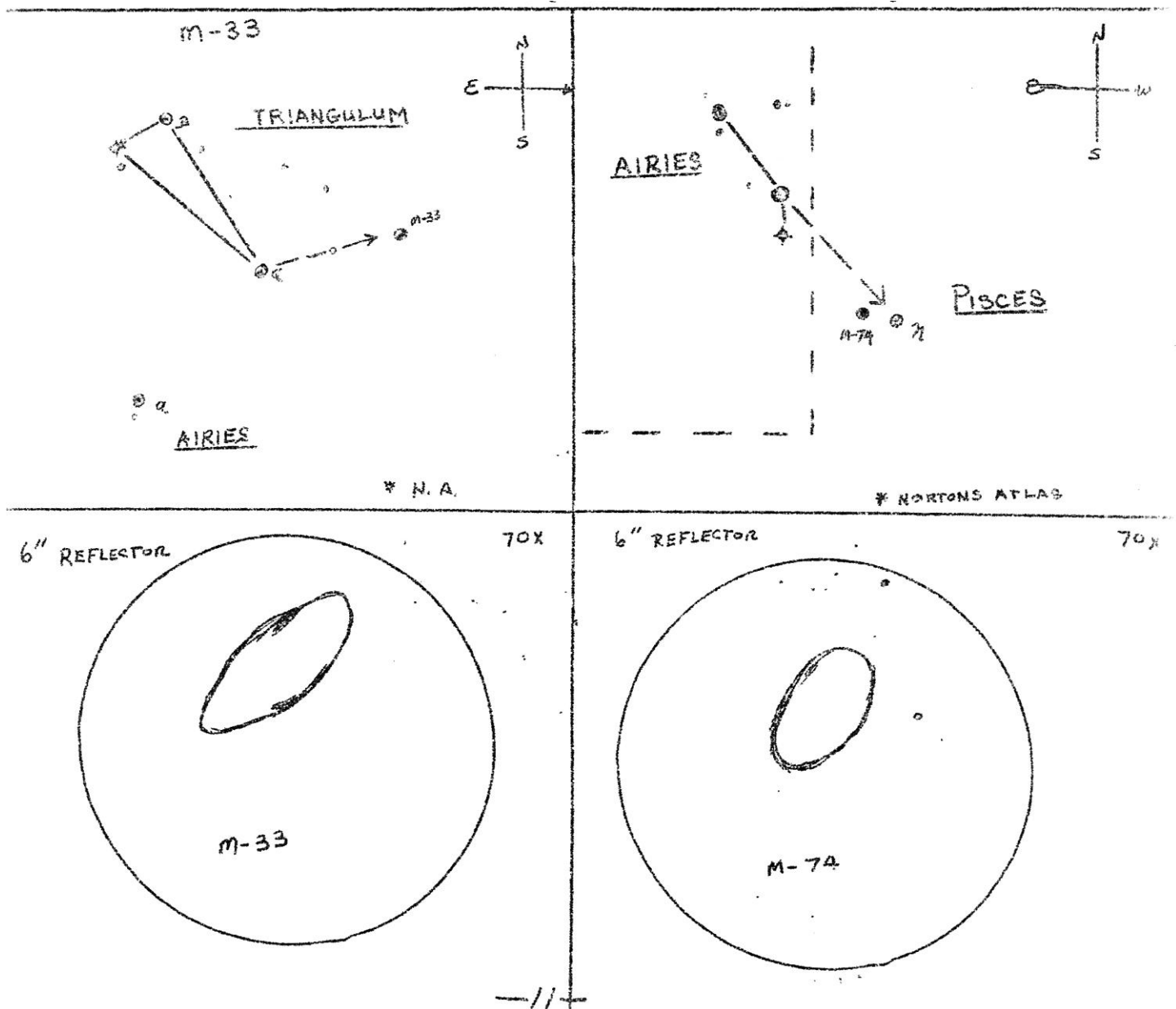
This galaxy is located in the constellation Triangulum. The coordinates are as follows: R.A. 1hr, 31min. DEC. +30° 24' -- magnitude 7th. If you do not use circles, look a third of the way from α Triangulum to β Andromeda. (See maps on next page.)

This same night nearing the midnight hour we searched for M-74. Edward A. Holyoke listed this galaxy as one of the toughest to find with a 3" telescope. I see why it was tough in a 3", because If you are not an experienced Messier hunter it will be difficult even in a 6" telescope. This galaxy is located in the constellation Pisces. With dark-adapted eye I saw a very faint white haze move across the field. I went back and looked again. I knew right away it was what I was looking for due to its size and low surface brightness. It is quite a challenge for anyone to find this object. If anyone finds this object let me know how it appears to you.

It is a beautiful galaxy face on, but don't expect it to look anything like it should, coordinates are as follows--- R.A. 1hr. 34min., DEC. +15°32'. Magnitude is 10th, some books list it as 11th magnitude.

To find M-74, take α and β Aries, extend a line 1½ times their length and you will come to a 3rd magnitude star, η Pisces. Find this first in your scope. Once you have found it, orient yourself with the directions of east and north of that star. While looking through your eyepiece move east of that star and slightly north. Within two eyepiece fields you should have hit it, if not you're very close. Try small back and forth movements to overlap the field your covering. Look carefully and move slowly!

Thanks to a good dark chilly night two of the harder objects have been found. With these I have run my total to 51 Messier objects found.



THE OBSERVER'S LIBRARY

by

KENNETH WILSON

Observe: A Guide to the Messier Objects, by Edward A. Holyoke. 35 pages, \$1.00. Published by, and available from the Astronomical League. Copyright 1962, 1966.

One area of amateur astronomy into which many observers interest themselves is the observation of “deep sky objects”. These include galaxies, open clusters, planetary nebulae, globular clusters, and diffuse nebulae. Well known to these observers is the French astronomer Charles Messier (1730-1817). Messier was a comet hunter, and in his search for comets he came across many objects that could be mistaken for comets. To prevent them from being taken as comets by himself and others, he compiled a list of those 103 (originally 109) objects. We do not remember Messier for his comets, but instead for his list of “M” objects that he left us. This list is an excellent guide to many fine deep sky objects visible with small telescopes.

Unfortunately there are very few books written on finding Messier objects with a small or moderate sized telescope. There are many “lists” giving constellation, type, magnitude, coordinates, etc.; but not many “guides” intended for the amateur.

One of these guides is Edward Holyoke's Observe: A Guide to the Messier Objects. Holyoke devotes an average of a paragraph per object of the Messier catalogue. He includes such information as NGC numbers, coordinates, and magnitudes along with his personal description of the objects. He has observed all of the Messier objects with his binoculars, 3½" refractor, and 6" reflector, and thus can give a good description of what to expect. Holyoke also includes the “HV” numbers that Norton's Star Atlas quite often uses in place of the “M” designations. This saves much confusion when one is using Norton's to find Messier objects. Another convenience of this book is its spiral binding which allows laying it flat when one uses it at the telescope.

On the back pages there is a log in which the amateur may record his observations of the “M” objects. Along with providing some proof of one's

observations, this log has space for information too often ignored by the amateur, such as: date, time, seeing, etc.

Also worth mentioning are the 26 photographs in the book. Most of them closely resemble that the amateur will see through his own telescope. They were taken through everything from a 6 inch f/7.5 scope and a 7 inch Fecker triplet to the 200 inch Hale instrument.

Even though this work leaves out certain data much as distances, sizes, etc.; it is an excellent book for any amateur hunting the Messier objects. It is available from the Astronomical League: c/o Aloe A. Cherup, 4 Klopfer Street, Pittsburg, Pennsylvania, 15209.

A VISIT TO MY OBSERVATORY

When the day is done and the night is new,
When the moon is bright and the stars in view
I hasten to my observatory
There to view the heavens and their glory.

With lens and scope I bring the planets near
And wonder at the Power that placed them here,
An awesome, humbling marvel is this view,
And to think this same Power holds me and you.

"In Him we live, move and have our being,"
Thus I marvel at the things I'm seeing.
If He is mindful of the sparrow's fall,
Then surely I can trust to Him my all.

Humbled by this scene of Cod's great Glory
I close the door of my observatory,

--Belle Terry alder

DO YOU HAVE ANY OLD ASTRONOMY BOOKS AND/OR MAGAZINES THAT YOU NO LONGER NEED? WELL, WHY NOT PUT THEM TO GOOD USE? GIVE THEM TO ONE OF THE OFFICERS OF THE CLUB. THEY WILL BE PLACED AT THE OBSERVATORY TO START THE WARREN ASTRONOMICAL SOCIETY LIBRARY, WHERE THEY WILL BE AVAILABLE FOR USE BY ANY MEMBERS OF THE CLUB, ALSO, IF ANYONE HAS AN OLD BOOKCASE THAT THEY WOULD LIKE TO DONATE, IT WOULD BE MOST APPRECIATED.

-- Kenneth Wilson

ASTRONOMY MAGAZINES

Since Sky and Telescope is not (and doesn't claim to be) the one and only source of information on astronomy in print, amateur astronomers would profit by subscribing to several other publications as listed:

Griffith Observer, Griffith Planetarium, PO Box 27787, Los Angeles, CA 90027. \$3/yr. \$5.50/2yr. Small, monthly, fine pictures, outstanding articles. A priced must. Enjoyable and informative for juniors and adults alike.

Meteor News, Astro-Gator Astronomy Club, Jacksonville Children's Museum Planetarium, 1025 Gulf Life Drive, Jacksonville, Florida 32207. \$1/Yr (5 issues). If you think meteoritics is limited to a few major showers, read this one and learn.

The Observers Handbook, Royal Astronomical Society of Canada, 252 College Street, Toronto 130, Ontario. About \$1.50 per annual issue. Many clubs buy in bulk for their membership. Excellent content, best and latest tables on solar system and sidereal data. Binding won't stand up to heavy use, though.

Astronomy and Space, David and Charles, Ltd., South Devon House, Newton Abbot, Devon, England. £2.50 yearly (4 issues) A new publication, edited neatly by Patrick Moore, Terence Moseley and Ian Nicholson, succeeds Astronomy Today. In addition to many fine items similar to those found elsewhere, A&S also prints some very long articles.

Journal for the History of Astronomy, Purnell journals, 850 Seventh Ave, New York City 10011. New last year, this one is rather specialized and sometimes quite technical (other times very basic). This type of article is not easily available elsewhere, hence the outlandish price -- \$9/copy, \$15/yr (3 issues), \$27/2yrs. Mailed by ship from England, where it is edited and published, it arrives on the East Coast about 1½-2 months after the cover date. But nothing it talks about is newer than a few decades, so who cares?

Optical Spectra, 7 North Street, Pittsfield, Massachusetts 01201. \$12/yr. monthly. Free to those working in optics or similar fields (astronomers qualify). A few items monthly on space technology, plus several good photos

Smithsonian, edited in Washington but subscriptions to P O Box 2928, Boulder, Colorado, 80502. \$10/yr, includes membership in Smithsonian Associates with some benefits. About 6-8 astronomy-related articles per year, outstanding illustrations, good columns.

Scientific American. You all know about it. 415 Madison Avenue, New York City 10017. \$10/yr, \$18/2yrs, \$25/3yrs.

The Gurley Ephemeris for the Sun, Polaris and other stars. Yearly. Free. Write for single copies to W E Gurley, Troy, New York, 12181.

Solar Ephemeris and Surveying Instrument Manual. Keuffel & Esser, Morristown, N.J. Sorry, I don't know the price.

Aviation Week and Space technology, good articles on both topics. If in a field related to the title, \$15/yr., \$30/3yrs. Otherwise \$30/yr, Publisher decides if you're qualified on basis of a questionnaire. PO Box 430, Hightstown, NJ 08520.

Excellent journals are published by the following organizations. Addresses usually available from libraries, astronomy departments, or someone who gets them – ask around. Great lakes Planetarium Association, Mid Atlantic Planetarium Society, Planetarium Association of Canada, Pacific Planetarium Association, SouthWestern Association of Planetariums (get their addresses from a planetarium, naturally), Royal Astronomical Society of Canada, British Astronomical Association, Royal Astronomical Society, American Astronomical Society, Astronomical Society of the Pacific, Association of Lunar and Planetary Observers.

Icarus (Solar System Studies) Excellent, expensive, sorry I don't know the particulars. Watch the "In the Current Journals" section on S&T's News Notes page for names of more magazines. Addresses can usually be furnished by librarians.

A great many of the astronomy clubs, both in and out of the AstroLeague, publish fine periodicals. Their topics and quality vary widely, and sometimes their frequency of issue is irregular, but make sure your club (1) exchanges its publication with several others, and (2) the ones it gets in return are brought to every meeting for you to read.

Non-magazines of interest include:

Monthly sky calendars, \$1.50/yr., Abrams Planetarium, Michigan State U, Lansing Michigan, 48823. More accurate, usable, and clear information than anywhere else.

Event Cards, Smithsonian Center for Short-Lived Phenomena, 60 Garden Street, Cambridge, Massachusetts, 02138. Fast, accurate information on anything scientific that doesn't last long. Pricing as follows: Annual subscription rates if you get them:

<u>Avg#/yr</u>	<u>event category</u>	<u>as issued</u>	<u>weekly</u>	<u>monthly</u>
200	earth science event cards	\$40	\$20	\$10
200	biological science event cards	\$40	\$20	\$10
100	astrophysical science event cards	\$20	\$10	\$5
25	urgent anthropological/archeological	\$10	\$5	\$5
525	All CSLP event cards	\$100	\$50	\$25

Graphic Time Table of the Heavens, annual, Maryland Academy of Sciences, 7 W Mulberry St., Baltimore, Maryland, 21204. Large wall poster, \$1.85 rolled, \$1.50 folded, extremely impressive to the uninitiated. Blown up version of the centerpiece in Sky and Telescope every January.

Catalog of North American Planetaria (CATNAP). \$1 from Roberson Center, Binghamton, New York. Compiled by Norman Sperling, which is one reason it's listed here. The other reason is that there are about 735 planetaria in the USA now, scattered thickly through this region. A copy of this catalog will show you how close you are to a planetarium, which is probably pretty close indeed. Planetaria often are eager to cooperate astronomy clubs, junior astronomers, etc.

This list is far from complete. Rather than being exhaustive, it should merely put you on to the trail of periodicals of great value. You will probably find others to recommend (write me about them). I highly recommend S&T as the basic magazine for the average

astronomer, but I also highly recommend not restricting yourself. Get together with others in your club and each subscribe to one of the publications listed and bring them all to each meeting – have a reading period each month. You'll find an enormous world of astronomical interest in these periodicals. Don't restrict yourself to a monopoly source of information.

All the comments above, including typographical errors, are those of Norman Sperling, Director, Duncan Planetarium, Princeton Day School, PO Box 75, Princeton, NJ, 08540. Please let me know what you think about this, and especially tell about your favorite if it's not listed here. It is impossible to rate as better as or worse than each other publications intended for different purposes, hence for such comments here. Many duplicate common features, such as sky and planets this month, but each has articles which simply won't be found anywhere else. Good luck, good reading.

DRACONID STORM NEXT YEAR?

On October 9, 1933 as twilight faded over Europe the sky was filled with meteors. Rates increased until a maximum rate of 350 meteors/min. (20,000 per hour) was reached. High rates of over 10/min. or 600 hr. were seen only two hours centered on the maximum.

Thirteen years later, on October 10, 1946, the Draconids again gave a good display of over 300-500/min. This time the maximum came in North America.

The Draconids were proven to be debris from Comet Giacobini-Zinnar by the British meteor astronomer W.R. Denning in 1926.

Whenever Earth intersects the comet's path sufficiently soon after the comet has passed, a good shower can occur. In 1933 Earth passed through the path 80 days after and in 1946 only 8 days after the comet. According to Dr. D.K. Yeomans of the University of Maryland, Earth will pass through the comet's orbit 58.5 days after the comet, on October 8, 1972 at 1600 UT. But how close will the passage be? Comet Giacobini-Zinnar's orbit is constantly changing due to Jupiter's gravitational pull, hence another criteria for a good display is the passage of the center of the comet's orbital path sufficiently close to Earth's orbit. In 1972 Dr. Yeomans' calculations give an approach of Only .00074 A.U. to Earth for the debris. In 1946 passage was some .00625 A.U. away.

Because of the closer approach of the comet's orbit than in 1946 and its earlier passage In 1933, things look excellent for a magnificent display in 1972.

However, from the map on the following page we can see that, during maximum, the time being 11 AM EST, North America will be in daylight and radar observations will be the only ones possible. That's the way it goes.

Where would be the best place to watch the shower? Japan is closest from the west coast or Moscow from the East coast.

However, this October 9th, the Draconids should be watched carefully. Early evening is the best time. On this date, the earth intersects the stream 309 days before the passage of the associated comet. The intersection will be very close to the center of the stream.



Reproduced without permission
from Meteor News, August, 1971.

Dark-haloed craters within
ALPHONSUS

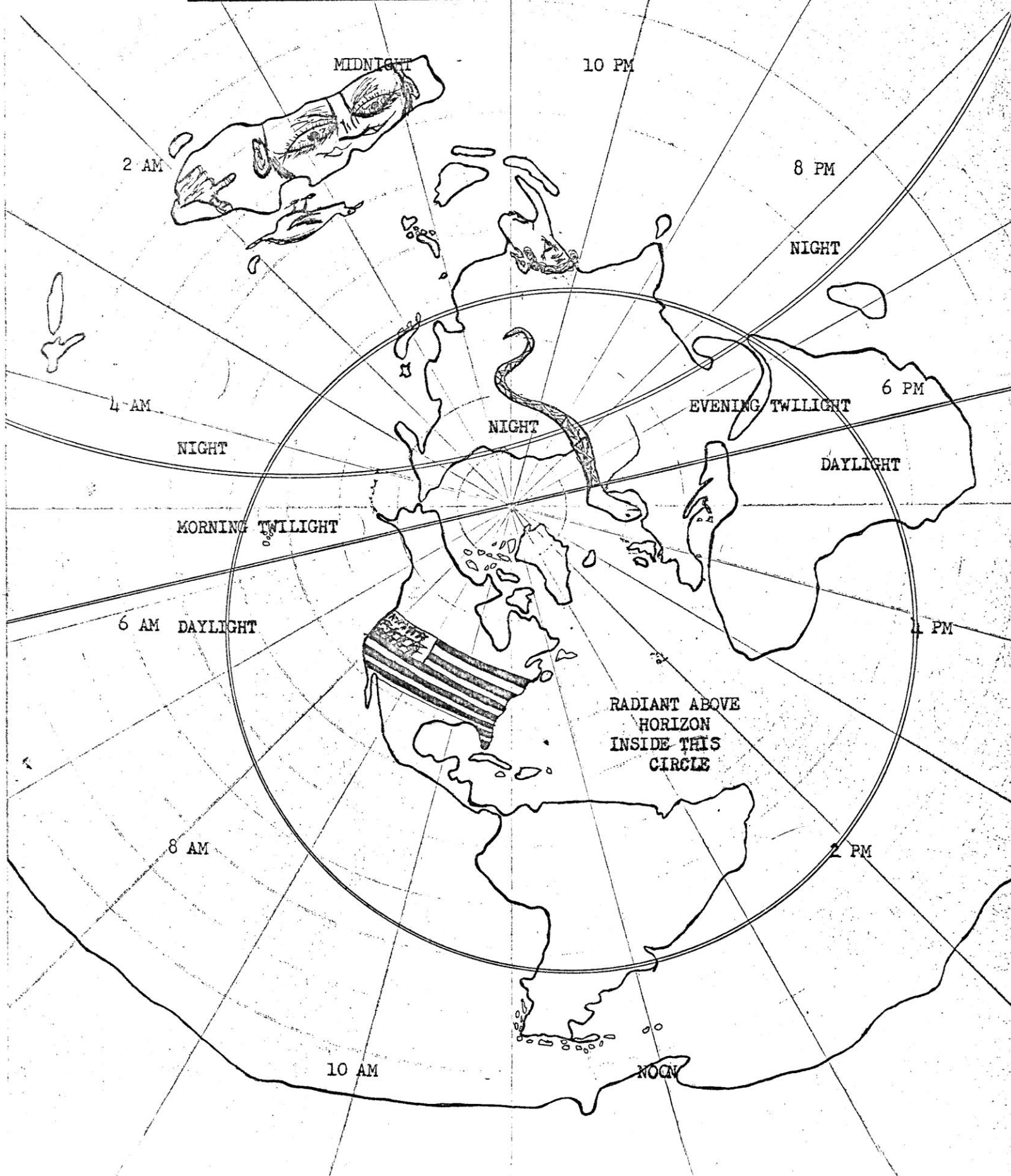
Observed best under high sun
with any telescope.

cp -- central peak

08/

LIMITS OF VISIBILITY

1972 DRACONID METEOR SHOWER

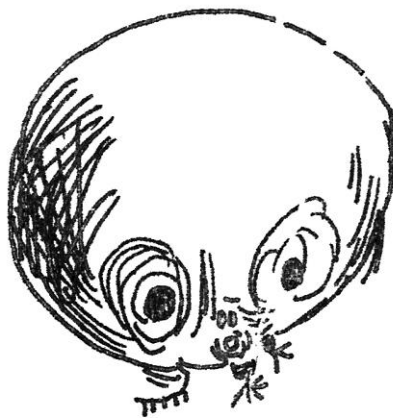




"Yesterday (I believe it was a Thursday), whilst slogging through a bog betwix't the rivers Wye and the legendary Wyenott I came 'pon a rather large stone whereupon were a bunche of deeply carved runes, no doubt left to posteritie by the little known and long forgot 'Waspee' people, builders of Stonehenge, the Standing Stones of Callanish, and the Taj Mahal,"

"If I read these runes aright, they tell of weird and wondrous cloudes seen in the skies over the Monument to the Olde Man of the Mountain on Mount Manacle in Monmouthshire."

The Sky is interesting today;
Filled with cirrus clouds
Pointing in many different directions
Like a handful of arrows.
They're even pointed.



There is beauty in Nature's strangeness.
A rather long tubular cirrus cloude
Trails off on one end into a much longer,
And much thinner
Rod of spiraling vapor,
As an enormous tube of toothpaste
empties its contents northward
To the horizon.

From "Confessions of Rumpelstiltskin"
Confession #63



Dark-haloed craters near COPERNICUS

Observed best under high sun with <illegible in original> telescope, DHC's are suspected
'<illegible in original>' craters since it is also
believed the dark surface material in which they
are centered are 'new' ejecta or lava flows.

About 130 have been verified on the moon.
These and the 6 in Alphonsus are generally
the most prominent.



ASTRO-ALMANAC

by

KENNETH WILSON

OCTOBER, 1971

<u>OCT.</u>	<u>JUPITER'S¹ SATELLITES</u>	<u>EVENT</u>
1	31024	Twilight begins: 4:24, Ends: 7:14 L.M.T.
2	32014	Quadrantids meteor shower maximum rad.: 15 ^h 20 ^m +52°, (slow).
3	23104	
4	d0234	Full moon: 7h20m a.m., E.S.T., Lunar Perigee: 9 ^h 53 ^m a.m., E.S.T.
5	d0123	Venus 3° N. of Spica 12 ^h E.S.T.
6	42103	
7	42301	Uranus superior conjunction 17 ^h E.S.T.
8	43102	Saturn 7° S. of moon: 2 ^h E.S.T., Mercury in superior conjunction 10 ^h E.S.T.
9	d4201	Giacobinids meteor shower maximum rad.: 17 ^h 45 ^m 55° (assoc. with Comet Giacobini-Zinner 1933 III).
10	42310	
11	d4023	Last Quarter 0 ^h 29 ^m E.S.T., Twilight begins: 4:34, ends: 6:58 (L.M.T.)
12	4023*	Beginning of ζ Arietid meteor shower (thru 23), very slow with fireballs.
13	24103	
14	d2014	
15	31024	Uranus at: 12 ^h 54 ^m , -5°06'; Neptune at: 15 ^h 58 ^m , -18°51'.
16	30214	
17	23104	Pallas stationary 8 ^h E.S.T.
18	0134*	Lunar apogee: 3 ^h E.S.T., Mercury at superior conjunction (132,000,000 mi.)
19	0234*	Mercury at descending node, New moon at 2 ^h 59 ^m E.S.T.
20	21034	Venus 6° N. of the moon at 14 ^h E.S.T.
21	20314	Orionid meteor shower (18-26) maximum, radiant: 6 ^h 08 ^m , -15° (fast with persistent trails), Twilight begins: 4:45, ends: 6:43 L.M.T.
22	d3102	Neptune 6° N. of moon (6 ^h E.S.T.), Jupiter 5° N of moon at 16 ^h E.S.T., Antares 0.2° S. of moon at 19 ^h E.S.T.
23	34021	
24	43210	
25	42013	
26	41023	
27	d4203	First Quarter at 0 ^h 54 ^m E.S.T.
28	42013	Mars 4° S. of the moon at 19 ^h E.S.T.
29	43102	Mercury at aphelion
30	34012	Venus at descending node, Jupiter 5° N. of Antares at 14 ^h E.S.T.
31	32104	

1 This is a numerical representation of the relative positions of Jupiter and his satellites, as seen in the inverted field of a telescope. "O" represents Jupiter; 1: Io; 2: Europa; 3: Ganymede; 4: Callisto

WHAT IS THE W.A.S.P.? IT IS YOUR PAPER. IT IS OPEN TO YOUR COMMENTS, SUGGESTIONS, AND MOST OF ALL, YOUR WRITTEN ARTICLES. WE ACCEPT MOST ANY ARTICLE RELATED TO ASTRONOMY. CONTRIBUTE YOUR ARTICLE, WHETHER IT BE IN MYSTIC SANSKRIT, SCIBBLED CRAYON, OR GOLD GILT, WE WILL ACCEPT IT.

ANOTHER COMMENT
from
TELESCOPE WORK FOR STARLIGHT EVENINGS

By
William F. Denning

Vision. — There are perhaps differences quite as considerable in powers of vision as in quality of definition. It is not meant by this that the same person is subject to great individual variations, though some people are certainly liable to fluctuations, according to state of health and other conditions. Some eyes, as already stated, are less effective in defining planetary markings than in detecting minute stars or faint satellites of distant planets. Of course the natural capacity is greatly enhanced by constant practice, for the human eye has proved itself competent to attain a surprising degree of excellence by habitual training. Frequent efforts, if not over pressed so as to unduly strain the optic nerves, are found to intensify rather than weaken the powers of sight. Thus a distinguishing trait among astronomers has been their keenness of vision, which, in many cases, they have retained to an advanced age. It is true Dr. Kitchiner said his "eye at the age of forty-seven became as much impaired by the extreme exertion it had been put to in the prosecution of telescope trials, as an eye which has been employed only in ordinary occupations usually is at sixty years of age ! — to cultivate a little acquaintance with the particular and comparative powers of telescopes requires many extremely eye-teasing experiments." But the Doctor's opinion is not generally confirmed by other testimony, the fact being that the eye is usually strengthened by special service of this character. To unduly tax or press its powers must result in injury; but it is well known that the capacities of our sight and other senses are enhanced by their healthy exercise, and that comparative disuse is a great source of declining efficiency. Before the observer may hope to excel as a telescopist it is clear that a certain degree of training is requisite. Many men exhibit very keen sight under ordinary circumstances, but when they come to the telescope are hopelessly beaten by a man who has a practiced eye. On several occasions the writer was much impressed with evidences of extraordinary sight in certain individuals, but upon being tested at the telescope they were found very deficient, both as regards planetary detail and faint satellites. Objects which were quite conspicuous to an experienced eye were

totally invisible to them. I believe it is a good plan for habitual observers to employ method in exercising their sight. In my own case, I invariably use the right eye on the markings of planets and the left on satellites. Practice has given each eye a superiority over the other in the special work to which it has been devoted, and I fancy the practice might be more generally followed with success.

It is an advantage to keep both eyes open when in the act of observing, especially when surrounding objects are perfectly dark and there is no distracting light from neighbouring windows or lamps. The slight effort required to keep the disengaged eye closed interferes with the action of the other, and though this is but trivial, critical work is not efficiently performed under such conditions. Whenever light interferes the observer may exclude it by a shade so arranged as to afford complete protection to the unoccupied eye.

If faint objects are to be examined the observer should remain in a dark situation for some little time previously, so that the pupil of the eye may be dilated to the utmost extent and in a state most suitable for such work. After coming from a brilliantly lit apartment, or after viewing the Moon or a conspicuous planet, the eye is totally unfit to receive impressions from a difficult object, such as a minute star or faint nebula or comet; some time must be allowed to elapse so that the eye may recover its sensitiveness. As a rule amateurs will find it best to confine their attention to one class of objects only on the same evening, for if the Moon is first examined and then immediately afterwards the telescope is directed upon double stars and nebulae, the latter objects are little likely to be seen with good effect. If faint objects generally are persistently studied night after night and the observer refrains from solar and lunar work, his eye will acquire greater sensitiveness and he will readily pick up minute stars and minute forms which are utterly beyond the reach of a man who indiscriminately employs his eye and telescope upon bright and faint objects.