UNIVERSITY LOWBROW ASTRONOMERS NEWSLETTER

Volume 2 No2

Lowbrow Corner

Four of our club's members recently travelled to the Lincoln schools to give a slide presentation on astronomy to a group of gifted third through sixth graders. Afterwards, Lowbrows set up telescopes, and the youngsters enjoyed an informative evening of observing. In appreciation of the club's efforts, the children's teacher donated $40 to the club treasury.

More good news comes from Mike Potter who reports that thanks to the efforts of four Lowbrow members, the observatory now sports a new coat of white paint. The higher reflectivity should help keep temperature problems to a minimum. The roof still needs to be painted. Aspiring young (or old) artists should contact Doug Nelle at 663-2080.

Those who may have been worried about the absence of the sign commemorating McDivitt-White Corner will be happy to know that the sign has been restored and now stands in its rightful place.

And now for the best news. As you may know, the University Lowbrow Astronomers will not long possess the aforementioned title. In other words, the club's gonna get a new name.

To go along with this new name, we will have a brand new, revitalized newsletter with a new format, new columns, new articles; even a new name. This is where you get to help.

Announcing, the Name the Newsletter Contest. All you need to do is send your idea(along with your name, of course)to

Brian McGraw
711 Arch #203
Ann Arbor, Michigan 48104

The winner will be able to choose one book from the following:

The Universe by Isaac Asimov

The Exploding Universe
by Nigel Henbest

Theoretical Cosmology
by A. Raychaudhuri

Amateur Astronomer's Handbook
by Sidgwick and Enslow

The books will be available for inspection at the July meeting when the winner is announced.

Entries must be recieved by Friday, July 10. This contest is open only to paid members.

Alldecisions final. Not open to employees of Joe's Astromatic or their families. Void where prohibited by law.

NEW NEWS

By 'Plagiarism Pete' Alway

Here are a few bits of astronomical news lifted from various current and almost current magazines:

Construction of the next Space Shuttle orbiter, Challenger, is already well under way. According to the June Sky & Telescope, wiring, tubing, and thermal tiles are now being installed. The craft should be ready to fly in the fall of 1982

Score two points for ground-based Saturn watchers: Two moons, each about 30 km across, were discovered by three groups of researchers on several photographs taken by several observers. Regardless of who really dicovered them, their orbits make them interesting. The satellites share the orbit of Tethys, and orbit at the stable libration points 60° ahead of and 60° behind that moon.

For all you meteorite fans, it seems that a 10 kg iron meteorite found in Antarctica contains microscopic diamonds. The object was too small to have created enough heat and pressure to form diamonds upon impact on earth, so presumably the diamonds were formed in the collision of two asteroids.

LUNAR ECLIPSE

On the night of July 16, the moon will enter the earth's shadow, giving Michigan obsrevers a chance to see a partial lunar eclipse. The times given below are in Eastern Daylight Time.

MOON ENTERS PENUMBRA.....	10:05 PM
MOON ENTERS UMBRA.....	11:25 PM
MID-ECLIPSE.....	12:47 AM
MOON LEAVES UMBRA.....	2:09 AM
MOON LEAVES PENUMBRA.....	3:28 AM

STAR FARMER'S ALMANAC FOR JUNE
By Mike Potter

Time to break out the bug spray, grab a cold six-pack, a lawn chair, binoculars and telescope, and head for dark skies. The summer observing season is here at last with its shorter but infinitely more comfortable evenings. Early evening observing in June allows

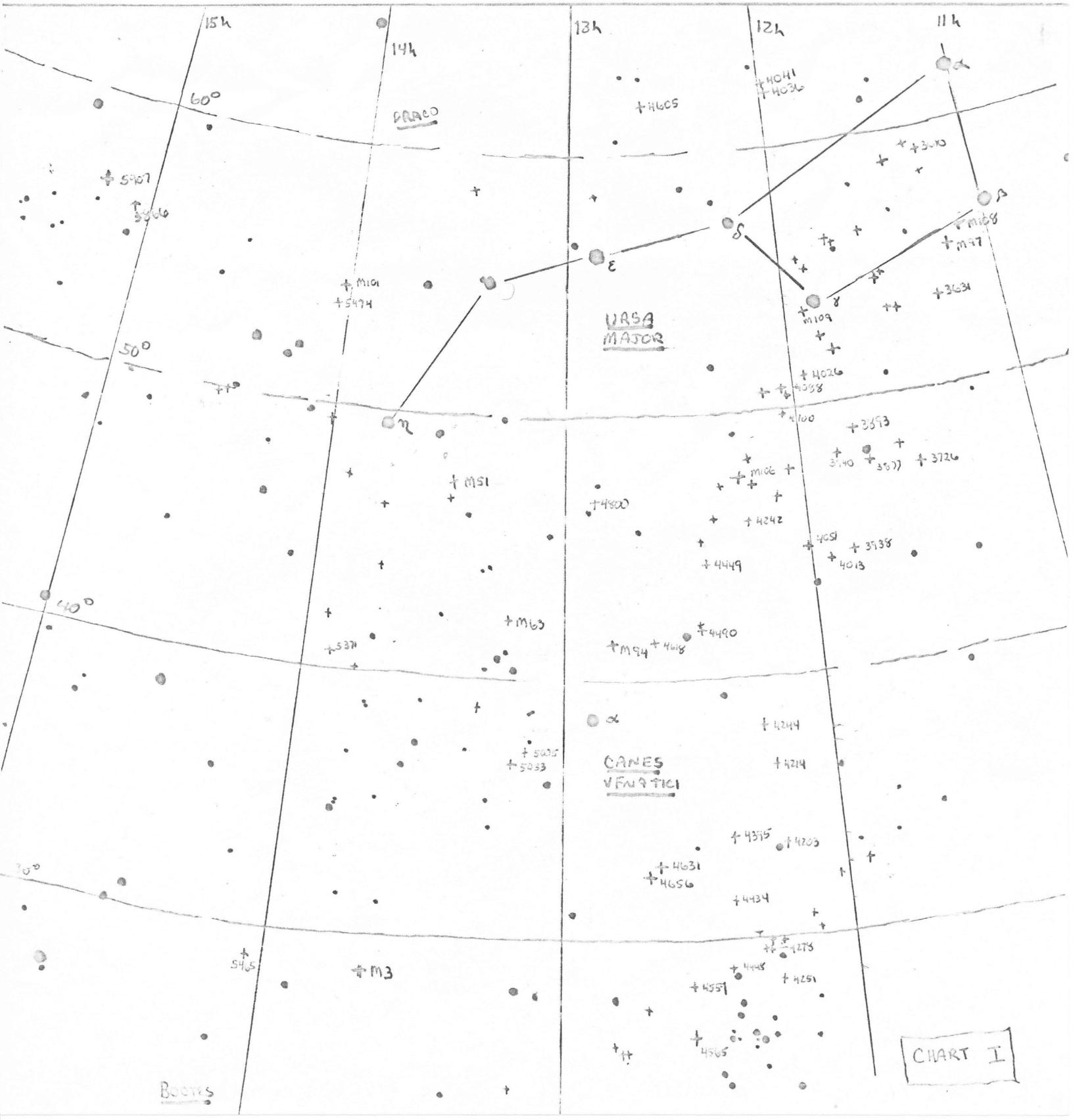


CHART I

a chance to check out some interesting galaxies as the Coma-Virgo cluster is still conveniently placed for observing. Also high in the west and northwest is the area of the sky represented by chart I on the previous page. This area contains, along with some interesting variable and double stars, some of the visually largest and brightest extragalactic objects to be seen anywhere in the sky.

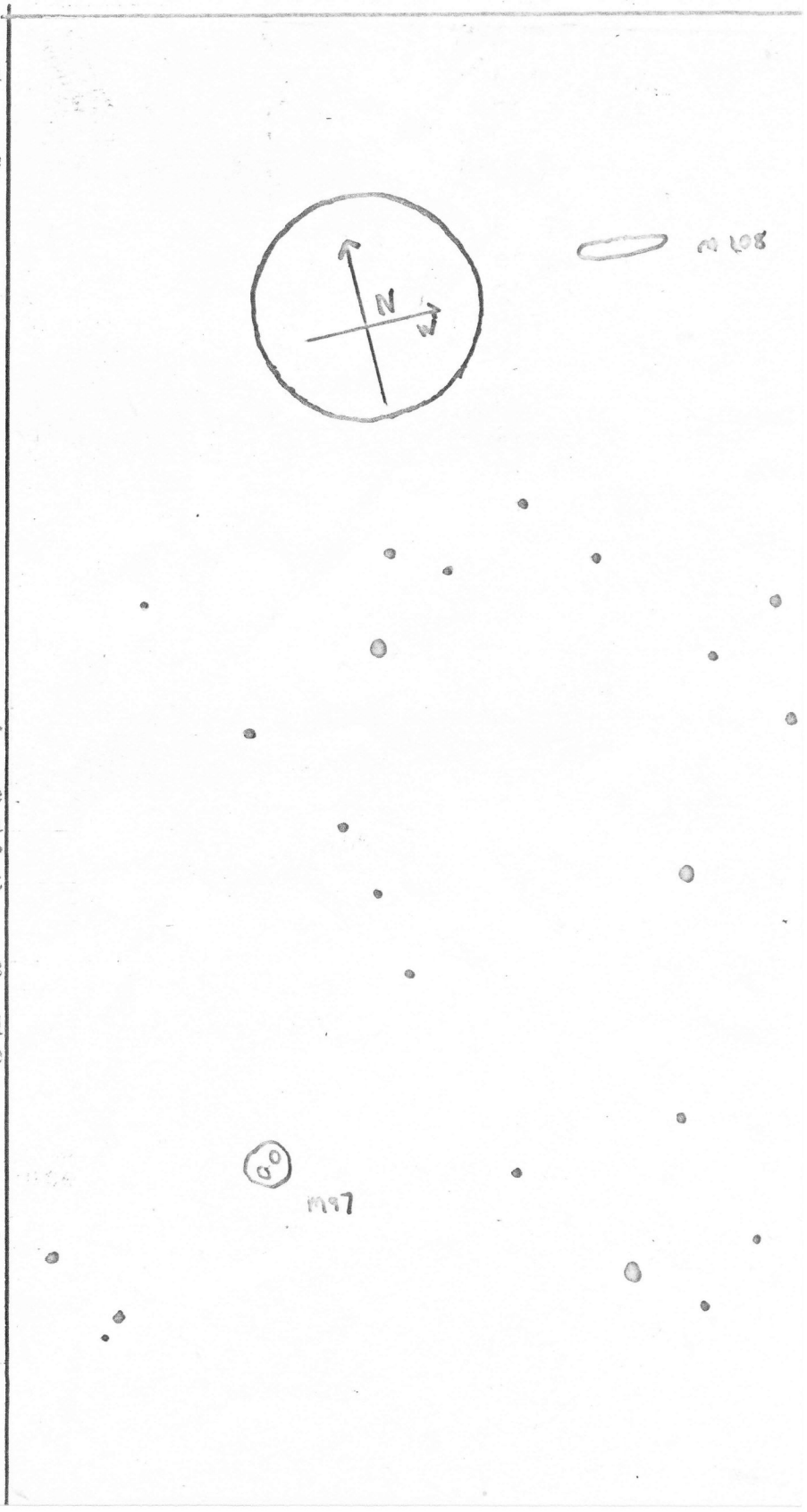
The area in and around Ursa Major is really filled with galaxies. A few of the brighter ones of this group include some familiar Messier objects, such as M81, M82, and M101.

M108 is one that should be included in this list of familiar objects, but is usually only viewed en route to observing M97, the Owl Nebula. Both objects are visible in the same low power field. M108 is an edge-on galaxy with a lot of dust lane detail visible in larger telescopes. The chart at right shows the field around M97 and M108 with stars to about 14th magnitude. The circle in the upper left corner shows the field size of the 24" telescope at Peach Mountain using the new 55mm eyepiece at 277 power. In a smaller telescope, both objects can be seen at about 40 power.

M97, otherwise known as the Owl Nebula, is one of the nearest planetary nebulae. Both of the 'eyes' are visible in the 24", but in a small telescope, say smaller than six inches, this object appears almost featureless. Its surface brightness is quite low, so don't try this one for city observing!

The easiest way to find these two is to first locate β UMa. (Merak), move 40' south (four fields in the 24"), then scan east about $1\frac{1}{2}$ degrees. This will get you to M108, appearing as a cigar shaped smear of light. By 'star hopping' using chart II, M97 can be found.

Another nearby galaxy, M109, can be seen just



south and east of γ UMa. (Phecda). You won't find this one on a Norton's Atlas, but in the 24" this barred spiral is fairly impressive. M109 (NGC 3992) appears elongated with wide, bright arms. With a little imagination you might 'see' an inner ring structure very near the nucleus. M109 has the distinction of being the last entry in the Messier Catalog, and is often considered one of the most difficult of the Messier Objects to find, a reputation it does not deserve. Both M108 and M109 are examples of objects added to Messier's list by Pierre Mechain, and were first observed in 1781.

If you draw an imaginary line from α UMa. through γ UMa., across the bowl of the big dipper, and continue some 10 degrees southeast, you will find you've paralleled a group of fairly bright galaxies, most of which lie just to the west of the line just described. M109 is actually part of this group. With a 12 inch or larger telescope it is actually possible to scan allong this string of galaxies from Ursa Major all the way into the center of the Coma-Virgo cluster, and almost an equal distance beyond. With the 24", there are over 1,000 galaxies visible in this area.

M106, which lies allong the line described above, is a real suprise the first time you find it. First of all, it is big, stretching almost 1/3 degree along its major axis, situated almost east-west. It is also very bright, being about 8th magnitude, and should be visible in binoculars on a good evening. (especially after a few beers). It is a nearby Sb galaxy with several dark patches and a smooth, bright central disk. Some spiral arm detail is visible in dark skies. Just west, in the same low-power field is NGC 4217, an 11.2 magnitude edge-on spiral with an easilly visible dust lane.

Nine degrees straight south of this pair is another large, bright edge-on galaxy, NGC 4244. This object is extended in P.A. 43 degrees and is magnitude 10.5. Except in fairly large telescopes, NGC 4244 is featureless.

NGC 4631 is one of the largest edge-on galaxies visible. In telescopes larger than 8 inches, it shows a lot of dust lane detail across its entire surface. In the 24 inch, it stretches across almost two fields, and appears very mottled. At magnitude 9.7, it is even visible in binoculars as a faint streak of light. An added bonus is NGC 4627, a 13.5 magnitude elliptical companion.

Moving just about 3/4 degree southeast brings into the field yet another spectacular edge-on galaxy, this one an irregular (deformed?) spiral, NGC 4656. At 11th magnitude it is difficult to find because it is so big, being half again as big as NGC 4631. Using low power, it will appear as a faint, patchy smear of light curved at the brightest end, resembling a hockey stick. Careful inspection will reveal a small knot just off the business end of the stick - mabee a puck?

Canes Venatici is also the location of several bright Messier objects, including M51, M94, and M63. M51 is easilly found just off the handle of the big dipper. There are few galaxies in the sky, perhaps none, which provide such a pleasing sight in small to medium size telescopes. Spiral arms are visible even in an eight inch, and with the 24" at Peach Mt., well it just has to be seen.

M63 is a bright Sc galaxy which is large (though it is smaller than most of the objects so far described!), and again shows considerable detail. The central area of this galaxy becomes suddenly very much brighter at a radius of about 1 arc min. from the nucleus. Careful observing and a dark moonless night are needed to see the many dim spiral arms.

Smaller yet, though very bright, M94 is a rather plain sight compared to many of those already described. The 24 inch might just show a slight bit of spiral arm detail on the galaxy's southeast side.

Many dozens more galaxies in this area deserve a look-see, but for now only one more will be described here. NGC 4565 is yet another superb edge-on spiral galaxy. It is easilly found at the eastern edge of the Coma star cluster and can be seen in binoculars in dark sky conditions. A dark dust lane divides this 10.5 magnitude object into two nearly identical parts with the nucleus showing prominently on the north side. Three other small dim companions lie nearby, but are magnitudes 14.5, 15.0, 15.5, so are visible only in telescopes larger than 20 inches.

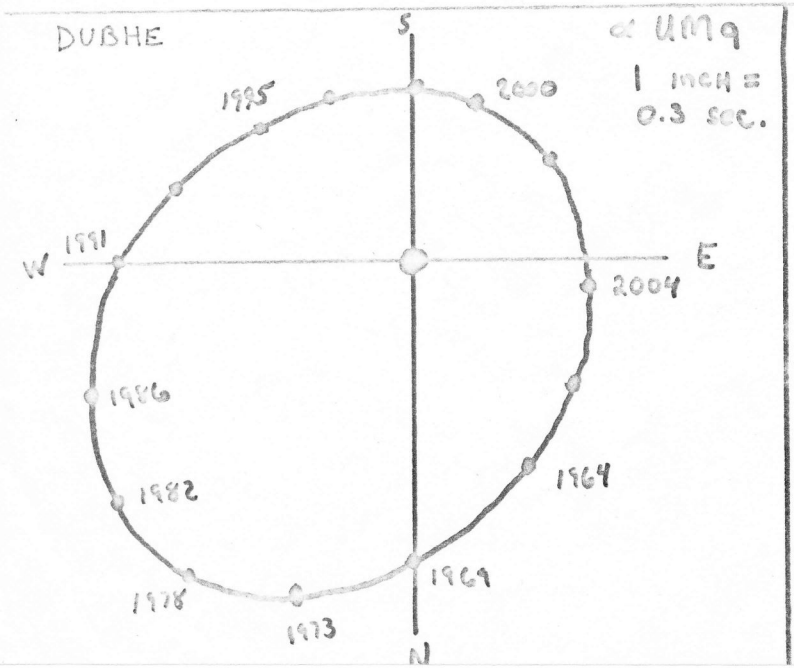
M3 in Canes Venatici is one of the finest globular clusters visible in the northern skies. At 300 power and above it is resolveable, although the central area may require a perfectly steady night. M3 can be found along a line drawn from Arcturus to Cor Caroli (α CVn.), a little closer to Arcturus.

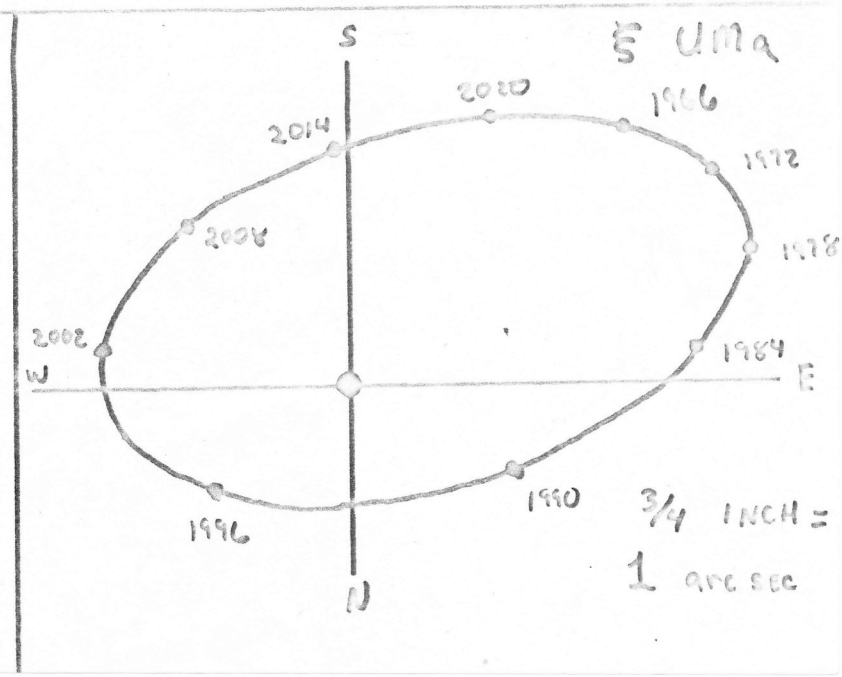
Just to the east about 6 degrees away is another globular cluster NGC 5466. This cluster is not nearly as rich in stars as M3, and is easilly resolved at 200 power.

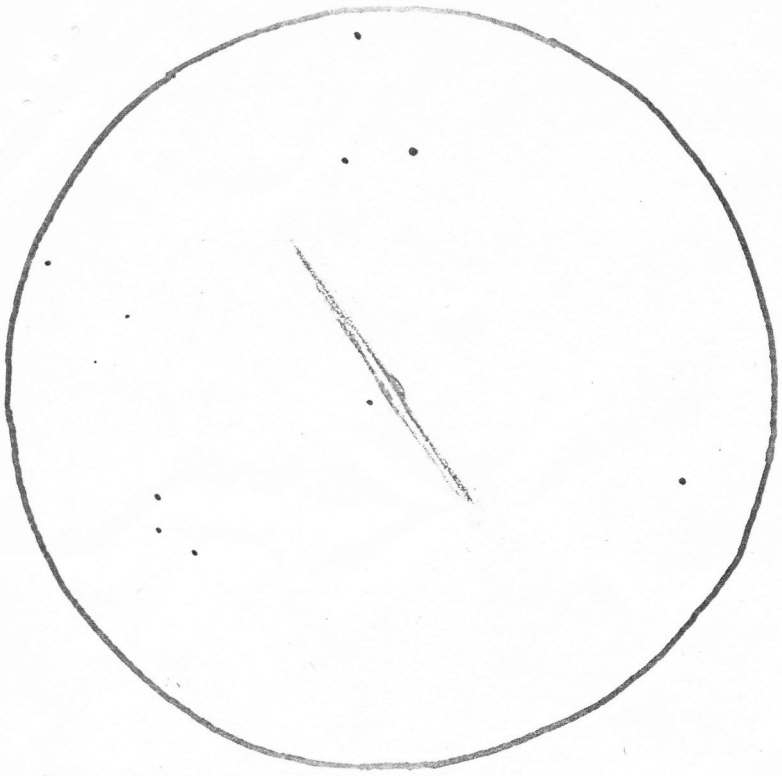
α UMa., Dubhe, is a very close double star with an orbital period of 44.4 years presently at its widest separation, about 0.6". The secondary is at P.A. 45 degrees and is 4th magnitude. If you can totally separate this pair you: 1) have a perfectly steady night, 2) have perfectly clean optics, 3) have probably finished your six-pack. Its difficult, but worth a try on a night of very good seeing while UMa. is high overhead.

ζ UMa., Mizar, is an easilly resolved double star with a separation of 14.4". It was the first double star to be discovered, found in 1650 by Riccioli. The two stars are of magnitudes 2.4 and 4.0. Mizar was also the first spectroscopic binary, discovered by Pickering in 1889.

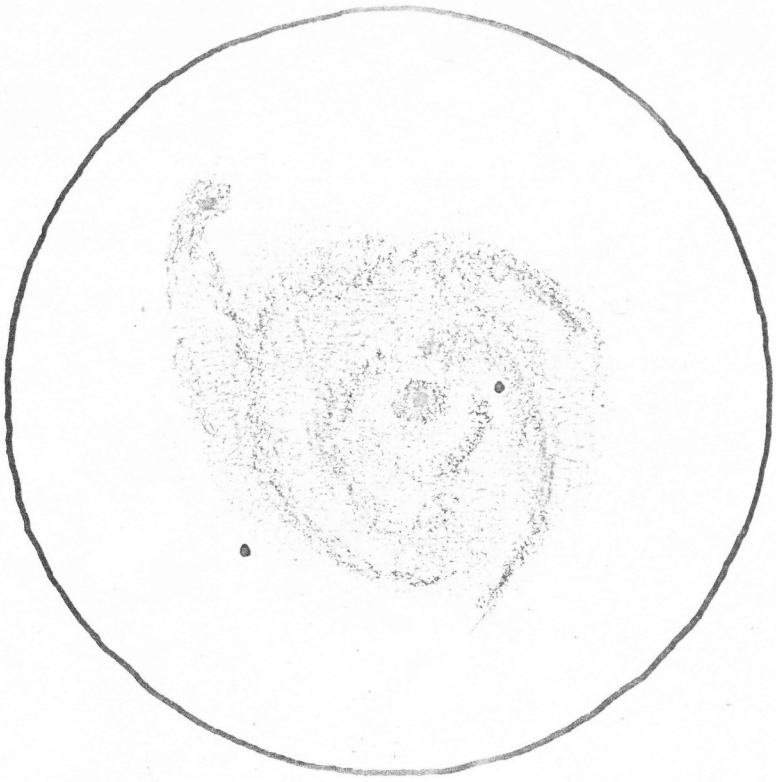
ξ UMa. is another close binary system and is distinguished as being the first binary to have its orbit computed, in 1828. It has a period of slightly less than 60 years and is presently at P.A. 105 degrees with a separation of 3.0". The magnitudes are 4.3 and 4.8, and both are nearly the same as the sun in type and brightness.



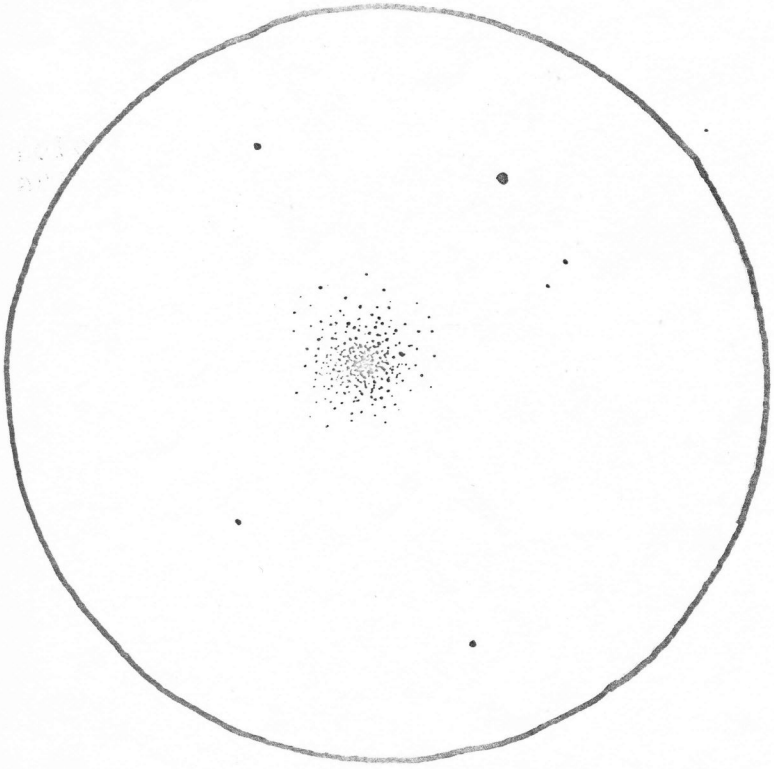




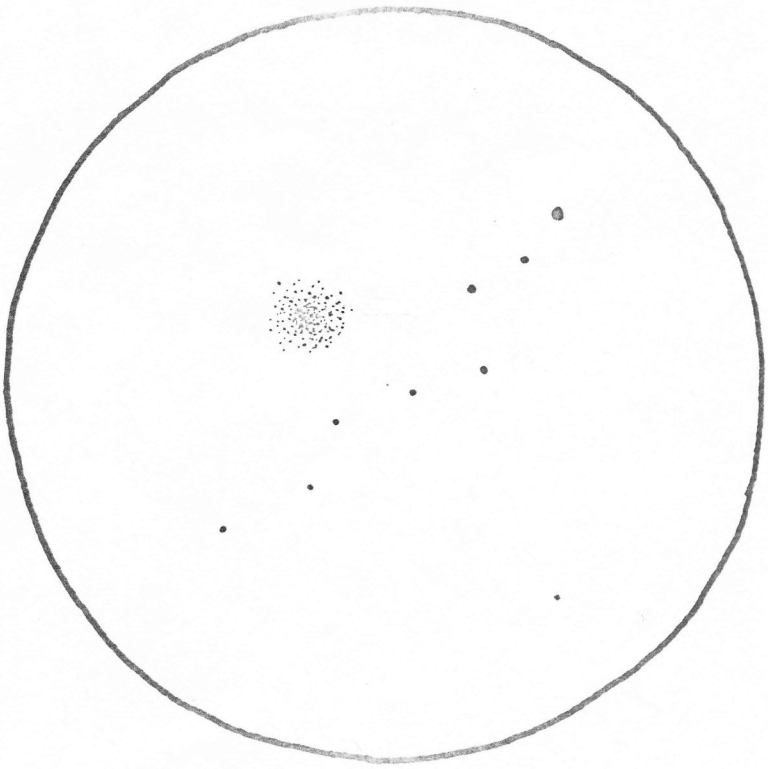
NGC 4565
12.5 INCH 94x
25' FIELD



M51 = NGC 5194-5195
12.5 INCH 94x
25' FIELD



M3 = NGC 5272
8 INCH 100 x
FIELD 40'



NGC 5466
8 INCH 65x
FIELD = 50'

WHAT'S UP

6/26/81 - 7/24/81 All times are E.D.T.

The bright planets visible this month are: Venus, during evening twilight, about 50 minutes after sunset (from latitude 40 degrees north)...low (6 degrees above the horizon) in the west-northwest... sets before twilight ends. Jupiter, to Venus' upper left, is high in the southwest at sunset. Saturn is a little higher than Jupiter but still within 1.8 degrees of it, and considerably dimmer. Mars can be faintly seen during morning twilight, climbing 10 degrees westward during the month of July--hence easier to find the later the date you look for it. Mercury is brighter than Mars and about 6 degrees below it July 10-18. Afterwards Mercury brightens as it sinks back into the sun's glare and pulls away from Mars.

June 26 Moon was at last quarter yesterday, and rose about midnight. Between now and July 9 there's a chance of a fairly strong pre-dawn meteor shower derived from comet Ikeya.

Sat. 27 Observing at Peach Mountain, weather permitting. Moonset two a.m.

28

29 June Draconid meteors.

30 Mars is finally emerging into the morning sky after months of hiding in the sun's glare. Look for it around 4:00 a.m., 5 degrees above the thin crescent moon, and almost the same distance above the east-northeastern horizon.

July 1 Moon new, best time for observing if it's clear.

2

3 Look for Venus below and to the right of the crescent moon this evening, low in the west-northwest, about half an hour after sunset.

Sat. 4 Observing at Peach Mountain if clear; moonset is 10:00 p.m.

5 Venus passes 18.6 minutes of arc north of the center of the Praesape star cluster (10:00 a.m.). They are 11 seconds and 95 minutes of arc in diameter, 26 degrees east of the sun.

6

7 The moon passes near the Jupiter-Saturn duo this evening.

8

9 Moon at first quarter.

10 Astrofest with Jim Loudon: Apollo 15 for the 10th anniversary; "Apollo's Legacy"; Shuttle films?

Sat. 11 Observing at Peach Mountain if clear; moonset about 1:20 a.m.

12

13

14 Mercury at greatest western elongation, 21 degrees from the sun, fairly high in the early morning sky. Look for it directly east-northeast about 4:00 a.m.--and for Mars, just 5 degrees above it!

15

16

17 Moon full--partial eclipse of the moon! Maximum eclipse occurs at 12:47 a.m. when the lower 55% of the moon's diameter is in Earth's shadow.

Sat. 18

19

20 National Space Exploration Day. On this day in 1969 human beings first walked on the place eclipsed last Friday.

21

MORE WHAT'S UP

July 22
23 Jupiter and Saturn are 1.1 degrees apart tonight--this is the third part of their triple conjunction of 1980-81. They won't appear this close again until December of the year 2020! This same night, Venus passes 1.2 degrees from Regulus, the brightest star in Leo. These two conjunctions are only 36 degrees apart.
24 July meeting of club, 8:30 p.m. in 5006 Angell Hall. Moon at last quarter.
Sat. 25 Observing at Peach Mountain.