The Shoreline Observer

Newsletter for the
Shoreline Amateur Astronomical Association

President- Peter Burkey **Vice President**- Steve Tuls **Secretary/Treasurer**- Mark Logsdon

Robert Wade, Editor *December 1991*

December Meeting

The December meeting of the Shoreline Amateur Astronomical Association will be held on December 19th, beginning promptly at 7:00 PM in the West Ottawa Middle School Planetarium in Holland, Michigan. The agenda will be as follows:

7:00-7:15	Refreshments and socializing.
7:15-7:30	The December Night Sky Tour by Sandy Plakke.
7:30-8:30	**1992 Observing Program** will be presented by Bob Wade. If time permits, Bob will also show a slide set obtained from Adler Planetarium.

Secretary/Treasurer's Report

November 21 regular meeting: 16 in attendance. November 26 Executive Board meeting: Peter, Sandy, Arlin, Steve, and Mark all present.

Club treasury amount: $446.82

Welcome to Larry Wildschut, newest SA^3 member.

Upcoming refreshments: Steve Tuls in December, Don Lewis in January.

3882 62nd Street
Holland, Michigan 49423

Upcoming Star Parties (read *freeze-outs*): December 13th (Geminid meteors) at Bob Wade's; January 3rd at Bob Wade's; January 10th at Mark Logsdon's.

Submitted by Mark Logsdon

Deep Sky Classifications

As many of you know, Robert Burnham's *Celestial Handbook* is an invaluable observing reference for the serious deep space observer. Not only is the mythology associated with each constellation covered in depth, but detailed descriptions of multiple star systems, variable stars, star clusters, nebula, and galaxies are also included.

These deep space objects are also classified according to their morphology (i.e. shape). What follows is a description of the different classifications for each type of deep space object. As you begin your observing program for the coming year, see if you can incorporate these classifications into your observing notes.

Trumpler type for open clusters

Concentration

I. Detached, strong concentration toward the center
II. Detached, weak concentration toward the center
III. Detached, no concentration toward the center
IV. Not well detached from surrounding star field

Range in brightness

1. Small range
2. Moderate range
3. Large range

Richness

p Poor (< 50 stars)
m Moderately rich (50 - 100 stars)
r Rich (> 100 stars)

An "n" following the Trumpler type denotes nebulosity in cluster

Shapley-Sawyer Concentration Rating for Globular Clusters

The values range from 1 to 12. Smaller numbers are more concentrated clusters.

Vorontsov-Velyaminov Type for Planetary Nebulae

1. Stellar
2. Smooth disk (a, brighter center; b, uniform brightness; c, traces of ring structure)
3. Irregular disk (a, very irregular brightness distribution; b, traces of ring structure)
4. Ring structure
5. Irregular form similar to diffuse nebula
6. Anomalous form, no regular structure

Some very complex forms may combine two types.

Hubble type for galaxies

E Elliptical, E0 is roundest to E7 is flattest. subgroups; 'd' is dwarf, 'c' is supergiant, 'D' has diffuse halo
S Spiral, 'a' has tightly wound arms, 'b' has moderately wound arms, and 'c' has loosely wound arms
SB Spiral with central bar
Ir Irregular

Dreyer Comments

In 1888 the astronomer John Dreyer published the *New General Catalog*, from whence we get the familiar NGC numbers for such deep space objects as star clusters, nebula, and galaxies. This catalog, totaling thousands of objects, was a significant advance over existing lists compiled by Charles Messier or Sir William Herschel. Dreyer also completed the herculean task of systematically describing each object with a concise, consistent, and standard set of astronomical shorthand. I have begun to use these in my own observing notes. I've found I'm paying a lot more attention to fine detail, and that's what makes us all better observers...

Old Description Codes And Dreyer Scales

Brightness

1. Excessively faint
2. Very faint
3. Faint
4. Considerably faint
5. Pretty faint
6. Pretty bright
7. Considerably bright
8. Bright
9. Very bright
10. Extremely bright

Size

1.	Excessively small:	3" - 4" diameter
2.	Very small:	10" - 20" "
3.	Small:	20" - 30" "
4.	Considerably small:	20" - 30" "
5.	Pretty small:	50" - 60" "

6.	Pretty large:	50" - 60" "
7.	Considerably large:	3' - 4' "
8.	Large:	3' - 4' "
9.	Very large:	8' - 10' "
10.	Excessively large:	20' and larger

Shape

1. Round
2. Very little extended
3. Elliptical or oval
4. Considerably extended
5. Pretty much extended
6. Much extended
7. Very much extended
8. Extremely extended

Dreyer Code	Code Translation
ab	about
alm	almost
am	among
app	appended
att	attached
B	bright
b	brighter (always coupled with another letter)
bet	between
bf	brighter toward following side
biN	binuclear
bn	brighter toward north side
bp	brighter toward preceding side
bs	brighter toward south side
C	compressed
c	considerably
ch	chevelure
cl	cluster
co	coarse, coarsely
com	cosmetic
cont	in contact
D	double
d	diameter
def	defined
dif	diffused
diffic	difficult
dist	distance
E	extended
ee	most extremely
er	easily resolvable
exc	excentric
f	faint
f	following
g	gradually
gr	group
i	irregular
iF	irregular figure
inv	involved, involving
L	large
l	little (adv), long (adj)
M	middle or in the middle
m	much
mm	mixed magnitudes
mn	milky nebulosity
N	nucleus or to a nucleus
n	north
neb	nebula
nf	north following
np	north preceding
nr	near
P	poor
p	preceding
p	pretty (before F,B,L,S) (size and brightness blocks)
pg	pretty
pm	pretty much
ps	pretty suddenly
quad	quadrilateral
quar	quartile
R	round
r	resolvable
Ri	rich
RR	exactly round
rr	partially resolved, some stars seen
rrr	well resolved, clearly consisting of stars
S	small
s	suddenly
s	south
sc	scattered
sev	several
sf	south following
sh	shaped
sm	smaller
sp	south preceding
st	stars
stell	stellar
susp	suspected
trap	trapezium
triN	trinuclear
v	very
var	variable
vv	an intensive of V
*	a star (or stars)
*10	a star of 10th magnitude
**	double star
*, * *	triple star
tri	triangle, forms a triangle with
gcl	globular cluster of stars

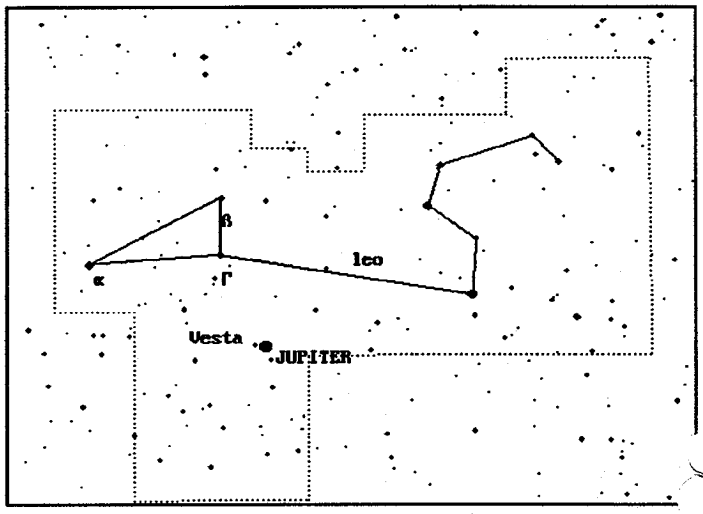
st9	stars from the 9th magnitude downward
st9...13	stars from 9th to 13th magnitude
?	items questioned by Dreyer enclosed in parentheses
"	arcseconds
'	arcminutes

Here are two examples of how Dreyer used these codes. NGC 185 is an E0 galaxy in this years observing program, and was described by John as: **pB,vL,ir,vgmbM,R** . The expanded translation would then be: pretty bright, very large, with a very gradually much brighter middle. It is also round. NGC 246, a planetary nebula in this year's program, contains the following Dreyer description: **vF,L,4*in dif neb.** Expanded, this would read: very faint, large, 4 stars seen in diffuse nebula.

Try to incorporate something like this into your own observing program. You'll never regret it.

Vesta Near Jupiter

During the months of December and January, the asteroid Vesta is near Jupiter. The figure immediately to the right shows the relative position of the "major" and "minor" planets.



The second figure is a magnification of the star field, and shows stars to the 10th magnitude. The plot shows daily motion of the asteroid from the 15th of December through the 15th of January. Note that Vesta crosses the Leo-Virgo border during this time. By mid January, Vesta lies about 2° northwest of the 12th magnitude galaxy NGC 3976. If by some miracle Michigan skies clear up sometime within the next month, give Vesta a try. It should be visible in either binoculars or small telescopes, being about magnitude 7 for next month or so.