

## Deb's Star Hops

*By Right Ascension/Constellation; SA is Sky Atlas 2000.0 chart number; m is magnitude*

### **Sculptor** – barred spiral galaxy

NGC 253 The Sculptor Galaxy m7.1 25 x 5' 0h 47m, 25d 17m S SA # 18

Find Diphda, 27° NE of Fomalhaut; 7-1/3° south is the galaxy.

From Diphda, 4° south are 3 m5 stars; hop same again to galaxy.

### **Andromeda**

M31 Andromeda Galaxy m3.5 >3° 0h 43m, 41° N

find northernmost star in Great Square of Pegasus, then hop northeast “down 2” then turn northwest “up 2” the galaxy is near that star. Also nearby are galaxies M32 (nearly stellar but easy) and M110 (diffuse).

NGC 891 edge-on galaxy m10 14' x 2' 2h 23m, 42° N

When finding M31, “down 2” is hops of 7 & 8°, hop again 12-1/2° to Almach (gamma Andromeda) a blue/yellow double, then scoot east 3-1/2° for this galaxy.

### **Pegasus**

NGC 7331 galaxy 1/2° SW is Stephan's Quintet (4 of 5 are 300 million ly)

m9.5 10 x 3' 50 million ly 22h 37m, 34° N SA # 9

5° southwest of Scheat (westernmost star in the Great Square of Pegasus) find the finder-double (m4 1° apart). Scoot 6° north to another finder-double then continue 5° to the galaxy. Fainter, more distant <difficult> Stephan's Quintet lies 1/2° south-southwest, and millions of light-years farther away.

NGC 7479 barred spiral galaxy m11 4 x 3.3' 130 million ly 23h 4m, 12° N SA # 17

3° from Markab, in line with the side of the Great Square of Pegasus formed by Scheat and Markab (Markab is the southernmost star in the square; Scheat is toward west).

M15 GC m6.2 12' 21h 30m, 12° N

Hop from 7-1/2° Theta (Biham) to Epsilon (Enif) and half that distance again.

Theta (Biham) is 16° south-southwest of Alpha Pegasus (Markab), the southernmost star of the great square of Pegasus.

This GC contains a very <difficult> PN, Pease 1.

### **Pisces**

M74 NGC 628 face on spiral galaxy <difficult>

m9.19 11 x 9' 2 million ly 1h 36m, 16° N SA # 10

The 2 principle stars of Aries are 4° apart. Use them to hop south 6-1/2°, 1° past a m6 star.

Also – Mesarthim, m4.8 sep 8” orange-green double, 1-1/2° south of 2nd star in hop.

### **Perseus**

Double Cluster 2 OC 2h 20m, 57° N

from the center of the 5 brightest stars in the ‘W’ of Cassiopeia (Navi), scan through the next bright star to the east (Ruchbah) then continue the same direction to the Double Cluster. Easily visible in the finder.

## **Perseus** (continued)

M76 NGC 650 Little Dumbbell PN m12 4.8' 1500 ly 1h 42m, 51° N SA # 1, 4  
As when finding M31, “down 2” hops of 7 & 8°. Hop 14° northeast to m4 star; M76 is 3° past.

M34 NGC 1039 OC rich m5.2 35' 1500 ly 2h 42m, 43° N SA # 4  
Find Triangulum. Hop 10° (half way) from northernmost star (brightest, at “short end” of triangle) toward Alpha Persei

NGC 1499 California Nebula <difficult> 2-1/2 x 3/4° 4h, 37° N SA # 4,5  
12° north of the Pleiades. Mid-way between pair of m3 stars on outskirts of Perseus.

## **Eridanus**– *barred spiral galaxy*

NGC 1300 barred spiral galaxy m10.4 6 x 3.5' 3h 19m, 19d 25m S SA # 10, 18

## **Fornax**– *barred spiral galaxy*

NGC 1365 barred spiral, bright bar 60 m. l-y m9.5 8' 3h 33.6m, 36d 8m S SA # 18

## **Cetus**

M77 NGC 1068 round galaxy <difficult> m8.8 7' 47 million ly 2h 42m, 0° S SA # 10  
Mid-way between 2 bright stars (m2 & m2.8) (13° apart) in Cetus. 1° east of m4 star. This part of Cetus found 28° southwest of Pleiades or 23° south-southeast of Aries.

(Note to newbies: Don't forget to look in on the **Orion** Nebula, M42!)

## **Monoceros**

NGC 2244 open cluster surrounded by faint Rosette Nebula <difficult>  
m4.8 24' 6h 32m, 5° N SA # 11, 12  
9-1/2° east-southeast of Betelgeuse. Angle is ~90° from Alnitak in Orion.

## **Canis Major**

Deb's Cluster NGC 2362 OC m4.1 8' 7h 18m, 25° S SA # 19  
Find 2 bright stars 8-1/2 & 11-1/2° south-southeast of Sirius. Finder-hop at an angle 90° to the northeast 2-3/4° to the cluster, which is wrapped around a m4.4 star.

## **Gemini**

M35 OC m5 28' 6h 10m, 24° N SA #5  
lovely cluster with another nearby that is 5x distant  
just above the foot of the western twin of Gemini

## **Lynx**

NGC 2419 GC “Intergalactic Wanderer”  
m10.4 4.1' 300,000 ly 7h 38m, 39° N SA # 5,6  
7° north of Castor, which is a lovely double star

NGC 2683 galaxy m9.7 8x2' 8h 53m, 33° N  
from M44, hop 9° mostly north to Iota Cancer (yellow-white double m4.2) then continue 5°  
same direction. Galaxy is along base of 1-1/2° wide triangle.

## Puppis

M46 NGC 2437 OC m6.1 27' 7h 41m, 15° S SA # 12, 19

NGC 2438 small PN m10 1.1' within cluster, obvious with larger telescope.

Scout 2° north of Sirius. Cluster is 13-1/2° east of there, ~1° past M47.

NGC 2477 OC m5.8 27' 7h 52m, 39°S SA # 19

Far to the south. Hop 11-1/2° from Sirius to Wezen, then 15° same direction, just past NGC 2451, a bright OC.

## Ursa Major

M81 NGC 3031 & M82 NGC 3034 galaxies

m8.4 8.4 x 3.4' 11 million ly 9h 55m, 69° N SA # 1,2

Hop a diagonal across the Big Dipper bowl (Phecda-Dubhe, the pointer nearer Polaris) then repeat.

M108 NGC 3556 galaxy m10.1 8 x 2' 11h 11m, 56° N SA # 2, 6

From Merak (Big Dipper pointer farther from Polaris), scoot 1-1/2° southeast; not quite toward Phecda, more like at a right angle from the Little Dipper bowl.

M97 NGC 3587 Owl Nebula PN m11.2 3.2' 10,000 ly

11h 14m, 55° N SA # 2, 6

Less than 1° from M108 in similar direction, southeast from Merak.

M109 NGC 3992 galaxy m9.8 7 x 4' 11h 57m, 53° N SA # 2

Less than 1° from Phecda, in line from Merak (along bottom of bowl).

M101 NGC 5457 face-on galaxy m7.7 40' 14h 3m, 54° N SA # 2, 7

Forms triangle with Alkaid (end of Big Dipper handle) and Mizar/Alcor (double, next up the handle). Large, low surface brightness. <difficult>

## Leo— *barred spiral galaxies*

NGC 2903 galaxy with detail, bar difficult m8.9 13 x 5' 9h 32m, 21d 30m N SA # 6

1-1/2° south of a m4.5 star at end of Leo's backward question mark.

M95 NGC 3351 & M96 NGC 3368 & M105 NGC 3379 galaxies, little detail, bar on

M95 not likely seen all ~ m9

10h 44m to 10h 47m, 11d 42m to 12d 35m N SA # 13

Found 9-1/2° east of Regulus

## Virgo

M104 Sombrero Galaxy edge-on m8 9' x 4' 12h 40m, 11d 40m S SA # 14

start at northeast star in Corvus, finder-hop 3° north to 2° long "mini-Sagitta." M104 is 1° northeast from end of the arrow. 11° east of Spica & 1/2° south. Check nearby asterism.

## Hydra— *barred spiral galaxy*

M83 NGC 5236 barred galaxy m7.6 10.5' 13h 37m, 29d 52m S SA # 21

slightly east of and 19° south of Spica

while en route, Omega Centauri is 36° south of Spica <difficult>

NGC 3242 Ghost of Jupiter PN m9 20.8' (?) 10h 24m, 19° S SA # 13, 20  
31° south of Regulus. Forms shallow triangle with 2 faint stars southeast of and in line with Alpheratz, m2.2.

### **Coma Berenices**

NGC 4565 galaxy m9.6 12 x 1.5' ~ size of Milky Way, 25 M l-y 12h 36m, 26° N SA # 7  
Identify the 3 principle stars in Coma (Alpha, Beta, & Gamma). Start at gamma (northwest).  
Hop 2-1/2° SSE, ending at a wide double. Then hop 1-1/2° east to the edge-on galaxy.  
– OR – from gamma, scoot 2° east & slightly south to galaxy NGC 4559. Then drop 2° south to NGC 4565

M64 NGC 4826 Black-eye Galaxy m8.5 10 x 3.8' 12h 56m, 22° N SA # 7  
Hop 5-1/2° from alpha Coma toward gamma in the northwest, to the brightest star in the field, m5. The galaxy is 1° northeast, a right-angle from the prior direction of scanning.

### **Canes Venatici**

M3 GC m6.4 16' 13h 43m, 28° N  
from Arcturus, hop 5° southwest to Muphris, then turn 90° to northwest and hop 3° to a double, continue same direction again 4-1/2° to lone bright star, then 3° again to 2 stars and the cluster. Visible in finder from good location on Moonless nights.

### **Serpens Caput**

M5 GC m5.8 17' 15h 19m, 2° N  
find wide naked-eye pair in Serpens, in line with closer pair in Ophiuchus (10° away), find mid-way point between pairs, then hop west 10°. <<Need a better hop!>>  
Not much better: from Arcturus, hop 8° southeast to m4 star, then 15° same direction. M5 is slightly south of the line from Arcturus to the second star.

### **Scorpius**

M4 GC near Antares m5.9 26' 16h 24m, 27° S  
from Antares, hop 1-1/3° west. Barely visible in finder. Ridge of stars running N-S visible on cluster.

### **Sagittarius**

M22 GC m5.1 24' 18 37m, 24° S  
find Kaus Borealis the star at the top of the teapot, then hop 2-1/2° east. In finder, will see 2 multiple stars with a large fuzzball between.

### **Scutum**

M11 Wild Duck Cluster OC m5.8 14' 18h 52m, 6° S  
from Altair (southernmost of Summer Triangle), eye-hop 8-1/2° south (in a direction counter to the 2 stars framing Altair), then eye-hop another 10° the same direction to a large oval arrangement of bright star. M11 is one of them, with 4 in a trapezoid pointing to the cluster.

## Lyra

M57 Ring Nebula PN m9.0 2.5' 18h 54m, 33° N

from Vega, find the parallelogram to the southeast, then find the short southern end in the finder. The nebula is found where 1 star is “missing” in the row of 4 seen in a finder.

M56 GC m8.2 7' 19h 17m, 30° N

smallish globular. Start in Lyra at end of parallelogram that includes M57; the stars are 2° apart. Scoot 4° that same direction toward (and half-way to) Albireo.

## Hercules

M13 Great Hercules Cluster GC m5.9 17' 16h 42m, 36° N

find the 6 stars outlining a butterfly, then look along the west side of the northern portion (the “keystone”). Try the faint smudge of galaxy 1/2° northeast <difficult>

## Cygnus

M39 OC m4.6 1/2° wide 21h 32m, 48° N

Start at Alderamin (in Cepheus, southeastern star of square) then hop <8° to other southern “square” star, turn 90 degrees toward Cygnus 11°

LeGentil 3 huge dark nebula north of Deneb ~6°? <difficult>

Dark rift in Milky Way, parallel to and just east of long side of Northern Cross. M29 is at edge of rift, 1.8° south of Sadr (Gamma). <??>

NGC 7000 North American Nebula 20h 59m, 44° N

3+ degrees east of Deneb. Scan with finder or lower magnification. <difficult>

NGC 6826 Blinking Planetary m8.8 19h 45m, 50° N

from Deneb, finder-hop 5° west through the northern component of Omicron, then continue 5-3/4°. Alternate hop: from star at east end of crossbar (Iota), hop north 5-1/4°. At 100 to 150x, alternate between direct & peripheral vision to make nebula blink.

M29 OC m6.6 6' 20h 24m, 38° N

Located 1.8° south of star at center of cross; is at edge of the rift.

NGC 6910 OC m7.4 8' 20h 23m, 41° N

Find small circle of finder stars around star at center of cross. Cluster is one of them, 32' north of main star.

NGC 6866 OC m7.6 7' 20h 4m, 44° N

Located 5° from star at center of cross toward bright star at east end of cross. It's 3-1/2° from cluster to that star.

NGC 6811 OC m6.8 19h 37m, 46° N

from star at eastern end of crossbar, finder hop nearly 2° east, past 2 stars to cluster.

## Veil Nebula

From star at east end of cross, scoot south  $3\text{-}1/4^\circ$  to naked-eye star 52 Cygnus. Western portion of Veil runs through the star. Eastern portion is northeast from 52, not the direction this arc might indicate. <difficult>

## Delphinus

Gamma Delphinus nose of dolphin 20h 47m,  $16^\circ$  N

bright star is double;  $1/4^\circ$  toward dolphin's tail is another double.

Beta, where tail connects with dolphin, is triple.

The Flyswatter,  $1/4^\circ$  NW of the dolphin's nose; 4 star handle and 4 star rectangular end.

## Sagitta

M71 GC m8.2 7' 19h 54m,  $19^\circ$  N

Find 2-2-1 pattern of Sagitta. Finder will show between 2-1 there are 2 bright stars; the one toward the "1" star is the cluster.

H20 OC m6.8 6' 19h 53m,  $18^\circ$  N

28' south-southwest of M71, easy to overlook.

## Vulpecula

M27 Dumbbell Nebula PN m8 15' 20h,  $23^\circ$  N

From the "1" star in Sagitta, scoot  $3^\circ$  north in finder. Found near star in zig-zag or "M" pattern, at bottom-center of M. Looks like a fuzzy star in finder.

## Aquarius

Helix Nebula NGC 7293 PN m7.3 16x12' 22h 30m,  $21^\circ$  S

Find 2 stars  $\sim 2^\circ$  apart at eastern end of Capricornus;  $16^\circ$  east is a bright star in Aquarius (alternately found  $14^\circ$  north of Fomalhaut). Hop  $4^\circ$  southwest then  $3^\circ$  in the same direction to a mag 5.2 star. The Helix is  $1.2^\circ$  west. Scan with low power. <difficult>