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# Desert Sky Observer

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Volume 21 Issue 3

March 2001

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NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC  
P.O. BOX 4595, LANCASTER, CALIFORNIA 93539-4595

*The Antelope Valley Astronomy Club Is A California Non Profit Corporation  
Visit The Antelope Valley Astronomy Club Web Site At [www.avac.ac.org](http://www.avac.ac.org)  
The A.V.A.C. Is A Sustaining Member Of The Astronomical League*



## Up-Coming Events

**March 03:** First Quarter Moon at 2h 03m UT.

**March 09:** Full Moon at 17h 23m UT.

**March 09:** Monthly meeting, held at the S.A.G.E. Planetarium at the Cactus School in Palmdale. The meeting location is at the northeast corner of Avenue R and 20<sup>th</sup> Street East. Meeting starts at 7 p.m. Please note that food and drink are not allowed in the planetarium.

- **Speaker:** John Dobson of whom the Dobsonian Telescope is named after.

**March 16:** Last Quarter Moon at 20h 45m UT.

**March 25:** New Moon at 1h 21m UT.

**April 13:** Monthly Club meeting.

**Anytime:** Observe.

## President's Report

*Doug Drake*

Welcome everyone, especially our new members. We are all very fortunate to have an astronomy club like ours. There are many things our club is doing for the benefit of club members, the community and kids. New club members that are looking and seeking can find a place, and people, that have the same interest in astronomy as you have and have a chance to meet the more experience astronomers at our star parties; and, to inquire about the club's "Universe Sampler" for beginning astronomy. The intermediate and experience astronomer also meet at our star parties and satisfy the questions you have been wondering about. Our star parties also have a group called the "Messier Group" that gives you

a chance to look and find deep space objects like gaseous nebulas, grouping of star clusters and the far, faraway galaxies. And, to observe those wonderful planets within our own galaxy a group called the "Planetary Club".

It's true that our club has interests that are extraterritorial to the limits of the universe! But, we also have interest right here in Antelope Valley, believe-it-or-not! We charter the help of our community to get involved in the science of astronomy. We have a special youth fund to finance our youth effort and ask if you want to help please see our Treasurer, Steve Trotta, at the front door when you come to our meetings. We have a very special group of people that are part of the "Community Development" lead by Committee Chairman Errol Van Horne. People like France Grande, Debora Pedroza, Janice Van Horne, Errol Van Horne, Paul Gesirich and advisory Terry Pedroza are the ones that make-it-happen! You too can get with any one of these very nice people and share your ideas, thoughts and help create something wonderful for our young people and community. You are wanted and needed to make-it-happen.

## Vice-President's Report

*Terry Pedroza*

It looks to be a very busy month with the AVAC. We have John Dobson speaking on the 9<sup>th</sup> at the club meeting, a local star party on the 17<sup>th</sup> at my Dad's house, and the Messier Marathon on the 24<sup>th</sup> at Saddleback Butte State

Park. Yep it looks to be a fun month. Our club has so many fun new things going on that no one should be left wanting.

If anyone is interested in possibly doing a day trip, say to Griffith Park Observatory or some place like that; let me know. I'm gathering a list of possible sights for the club to start visiting once every other month or so and am looking for input. Are we as a club looking for just weekend trips or would a weekday trips be OK?

We are still looking for donations of floppy discs and new blank VHS videotapes. If anyone has Astronomy related books or tapes that they don't use, may I suggest thinking about donating them to the club library for everyone to enjoy. Our club library is growing every month in this way and I hope to see it continue to grow. I would like to thank everyone that has donated to the club library.

Lastly. It's Messier Marathon time. For those that have never done it, it's a blast. Stay up all night looking at all of the Messier objects, freezing your butt off, no sleep running against the clock. What more could a person ask for? Yes, you have to be a bit crazy but the sense of accomplishment knowing that **YOU** did it, is the prize. No this is not the night to fill out your Messier Observers card. The Astronomical League asks that you not use this night to log your Messier Observations.

Hope to see you all soon at a star party or club meeting. Clear skies. Terry

### **Secretary's Report**

*Tom Koonce*

Regular Club Meeting Minutes  
February 9, 2001

#### **Call To Order:**

- Doug Drake, President, called the meeting to order at 6:08pm.

#### **Secretary's Report:**

- Minutes for prior meeting not called for.

## **Desert Sky Observer**

### **Treasurer's Report:**

- Treasurer's Report not called for.

### **Old Business:**

#### Star Party:

- Last Star Party at Terry Pedroza's Father's house had over 30 in attendance.

### **New Business:**

- Visitors and new members were recognized.
- Doug announced that the Club's new Webmaster will be John Eakin and ably assisted by Mike Davis. The website will be updated weekly.
- Sharron Dalton will be visiting Orion Telescope Co. She offered to bring items back for free if Club members will let her know what they want.
- Membership Dues are due before February 28<sup>th</sup>, or they will be considered as lapsing.
- The 2000 "Keith Lawson Award" for contributions to the AVAC over the past year was awarded by Keith Lawson as a dual award to Doug Drake and Tom Koonce.
- Ideas were suggested by Club members to visit NASA at Edwards AFB, Plant 42, Goldstone, and Mt. Palomar. Doug asked members to e-mail suggestions to him.
- Doug discussed his observations of Venus, Jupiter and Saturn during the daytime, and the details he was able to see.

Break: 7:35 pm

Speaker: 7:45 pm

- Our speaker, Dr. Naguine Cox, former Chief Engineer of the Galileo Project at JPL to study Jupiter and its moons gave a great talk on the history of the program and Galileo's recent discoveries. She entertained questions afterward about

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both the Galileo and the Mars Exploration Rover program.

- Jeremy Amarant gave a 5 minute “Star Talk” using the planetarium that was informative and well received.

#### Close of Meeting:

- The meeting was adjourned at 9:15 pm.
- Minutes written and respectively submitted to the Executive Board, February 15, 2001.

### *Astronomical League Report*

*Tom Koonce*

Our club has special observing groups set up under specific guidelines established by the The Astronomical League; the Universe Sampler (Beginner’s) Group, the Planetary Observer's Group, and the Messier Group.

Each of these groups offers a focused program to learn more about the night sky, while concentrating on different classes of astronomical objects. The beginner's group offers a sampling of all types of objects in the nighttime sky, from planets to deep space nebulae and both naked eye and telescopic (or binocular) observing. Contact Tom Koonce (661-943-8200 takoonce@aol.com) for more information. The Planetary Observer's Group concentrates on detailed observations of the planets and is led by Doug Drake (661-266-2202 ddrake@hughes.net). The more advanced Messier Observer's Group will develop your observing skills while pairing you up with others who share a strong interest in deep space, dark sky observing. Contact Terry Pedroza (661-949-6975 thndrstrck@qnet.com). If you have any questions about the Astronomical League's publication newsletter "The Reflector," discounts or other benefits you are eligible for as a member of the AL, please feel free to contact me (661-943-8200 takoonce@aol.com).

## Desert Sky Observer

### *Member-At-Large Report*

*Errol Van Horne*

#### Community Development

In little more than a year, our club has grown “astronomically” increasing membership many times over and embarking on an extremely broad scope of activities that should please everyone while giving each of us specialized areas of individual interest to enjoy.

Part of this expansion is centered on club outreach to the community where our knowledge our expertise, and our talent can be shared by so many others. Two perfect examples of this were demonstrated this month: first, Tom Hames’ magnificent art work on the ceiling of the Planetarium foyer is not only visually stunning but also reminds us that all we need to do is “look up” to see the beauty of the universe. Second, Community Development Committee member Paul Gesiriech responded to a request from Grace Lutheran Church for a star party which was enjoyed by many who now see the night sky in and entirely different way. He was also able to offer club membership brochures to many of the attendees. The Community Development Committee also continued work on the valley wide essay contest with some exciting developments that should be firmed up enough for next month’s column. Additionally, an eight-inch mirror has been purchased for the Joe Walker Middle School telescope-building project that will hopefully be far enough along for a thorough report next month also.

Through numerous donations from you, the club’s membership, we have been able to establish a Youth In Astronomy fund in addition to our club general fund. To keep youth programs expanding and reaching more young people, we need to keep money coming in to pay for materials. In terms of the general fund, the equipment we buy for loan to club members, materials travel and reimbursement for speakers and miscellaneous expenses for running a club

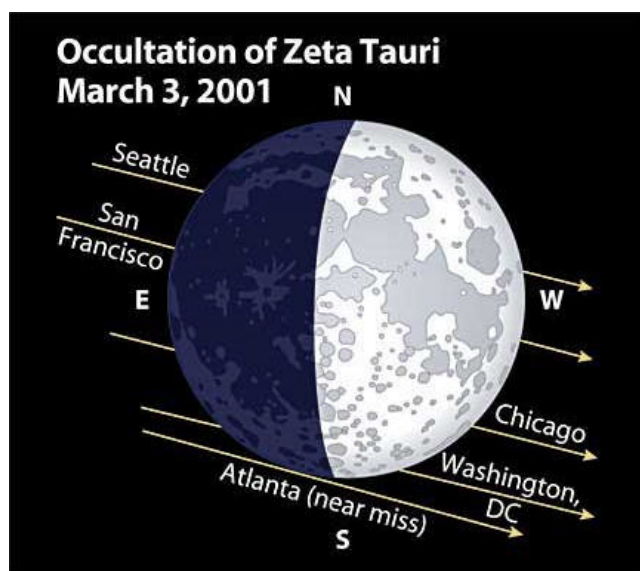
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and offering activities all takes money, far beyond the small amount we collect for annual dues. Since we are committed to keeping our dues low in order to allow everyone interested in astronomy to participate equally, no matter their income level, we must rely on donations from those who can afford to contribute financially.

Bottom line: please help; whether you can or cannot afford a financial contribution we could sure use some of your time, so please help out with one of our club committees or specialized activities. If you can contribute financially, please see one of your board members, no gift is too small and all are deductible gifts to a non-profit organization.

### *In The News*

#### Occultation Of Zeta Tauri



On Saturday, March 3rd, observers all across North America can see the first-quarter Moon pass in front of the 3rd-magnitude star Zeta Tauri. In the Northeast this event takes place near or shortly after sunset. Elsewhere it is a daytime event, but the star should be fairly easy to see in a telescope. Just point the scope at the Moon, focus carefully, and look around for the star. (It should be visible unless it is already behind the Moon, as indicated below.)

### **Desert Sky Observer**

All the times given here are standard time, p.m., on March 3rd. Cities are grouped by time zone. If your location is not listed, find the nearest city to you. After each name the list gives the star's disappearance time, reappearance time, and position angle (p.a.) of reappearance. (The p.a. is measured counterclockwise from celestial north to help you anticipate the point along the Moon's bright limb where the star will pop back into view. If you prefer, subtract  $177^\circ$  to get the angle measured upward from the Moon's southern cusp.)

PST:

Long Beach, CA, 1:39, 2:39,  $241^\circ$

Los Angeles, CA, 1:39, 2:39,  $242^\circ$

#### Completely Dark Galaxies

The universe could be harboring numerous galaxies that have no stars at all and are made entirely of dark matter. Astronomers may ultimately discover that completely dark galaxies outnumber the familiar kind populated by shining stars and gas, perhaps by as many as 100 to 1. This intriguing prediction is made by Drs Neil Trentham, Ole Moller and Enrico Ramirez-Ruiz of the University of Cambridge in a paper to be published in the Monthly Notices of the Royal Astronomical Society.

There is already a considerable amount of evidence that bright galaxies contain large amounts of dark matter, often ten times more than the mass of all their stars put together. There must be extra mass that we do not see to account for the observed movements of the stars under the influence of the gravity of the whole galaxy. In some galaxies we see so few stars they are incapable of holding themselves together as a galaxy. They would have long since scattered through space without the gravity of unseen matter to keep them together.

'Observationally, a picture is emerging that there is a lot of dark matter in the universe and that most galaxies possess a great deal of it.'

says Neil Trentham. 'On the theory side, the cold dark matter theory predicts that there are many low-mass galaxies for every massive one, but we don't see many of them around. That could simply be because very few stars - perhaps none at all - have formed in them. So the question is, "How do we look for these completely dark galaxies?"'

It's a difficult challenge, and the best technique will depend on the nature of the dark matter, which is still unknown. Trentham and colleagues have some suggestions. If the dark matter is composed entirely of fundamental particles, dark galaxies may act as gravitational lenses, distorting the appearance of distant galaxies that happen to lie behind them. If the dark matter includes some brown dwarfs their infrared radiation may be detectable. The same will be true if the galaxies contain any dead stars, such as white dwarfs or black holes. If they are nearby, it might be possible to detect these stellar remnants acting as gravitational lenses on the light of individual stars in other galaxies beyond them. Several lensing events in a small area of sky would suggest the presence of a dark galaxy.

The researchers have identified one place where a dark galaxy may exist, using yet another phenomenon that hints at the presence of an invisible object. They noticed that a galaxy called UGC 10214 has a stream of material flowing out of it, as if it is interacting with another galaxy. But in this case, the stream of material is apparently flowing towards nothing. (4 Jan. 2001)  
*RAS Press Notice*

### Notes

1. An image of UGC 10214 may be found at <http://www.ast.cam.ac.uk/~trentham/ugc10214.html>

## Desert Sky Observer

### Humor



"It's black, and it looks like a hole.  
I'd say it's a black hole."

### A.V.A.C. Membership Information

Membership in the Antelope Valley Astronomy Club is open to any individual.

The Club has three categories of membership.

- Family membership at \$25.00 per year.
- Individual membership at \$20.00 per year.
- Junior membership at \$15.00 per year.

Membership entitles you to our monthly newsletter, the Desert Sky Observer, and to borrow one of the Club's two telescopes. We currently have an 8-inch and 10-inch Dobsonian reflector for loan.

The Desert Sky Observer is available as a separate publication to individuals at a cost of \$10.00 per year. Subscription to the Desert Sky Observer does not entitle the subscriber to membership in the Antelope Valley Astronomy Club and its associated privileges.

# Good Neighbor

# OUTDOOR LIGHTING

PRESENTED BY THE NEW ENGLAND LIGHT POLLUTION ADVISORY GROUP INHELPAGI AND SKY PUBLISHING CORP.

## What is good lighting?

Good outdoor lights improve visibility, safety, and a sense of security, while minimizing energy use, operating costs, and ugly, dazzling glare.

## Why should we be concerned?

Many outdoor lights are poorly designed or improperly aimed. Such lights are costly, wasteful, and distractingly glary. They harm the nighttime environment and neighbors' property values.

**Glare** Here's the basic rule of thumb: if you can see the bright bulb from a distance, it's a bad light. With a good light, you see lit ground instead of the dazzling bulb. "Glare" is light that beams directly from a bulb into your eye. It hampers the vision of pedestrians, cyclists, and drivers.

**Light Trespass** Poor outdoor lighting shines onto neighbors' properties and into bedroom windows, reducing privacy, hindering sleep, and giving the area an unattractive, trashy look.

**Energy Waste** Many outdoor lights waste energy by spilling much of their light where it is not needed, such as up into the sky. This waste results in high operating costs. We waste over a billion dollars a year in the United States needlessly lighting the night sky.

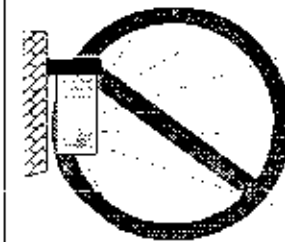
**Sky Glow** Rays that beam uselessly above the horizon create murky skyglow – the "light pollution" that washes out our view of the stars.

## How do I switch to good lighting?

**1** Provide only enough light for the task at hand; don't over-light, and don't spill light off your property. Specifying enough light for a job is sometimes hard to do on paper. Remember that a full Moon can make an area quite bright. Some lighting systems illuminate areas 100 times more brightly than the

## Some Good and Bad Light Fixtures

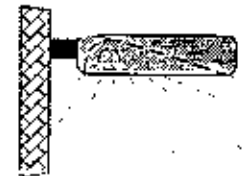
Typical "Wall Pack"



**BAD**

Waste light goes up and sideways

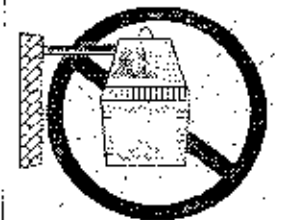
Typical "Shoe Box" (forward throw)



**GOOD**

Directs all light down

Typical "Yard Light"



**BAD**

Waste light goes up and sideways

Opaque Reflector (lamp inside)



**GOOD**

Directs all light down

Area Flood Light



**BAD**

Waste light goes up and sideways

Area Flood Light with Hood



**GOOD**

Directs all light down



full Moon! More importantly, by choosing properly shielded lights, you can meet your needs without bothering neighbors or polluting the sky.

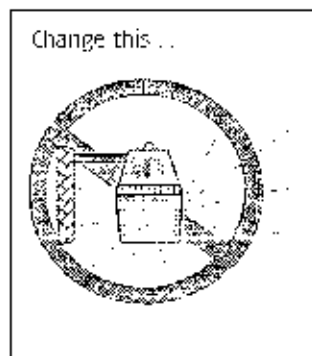
- 2** Aim lights down. Choose "full-cutoff shielded" fixtures that keep light from going uselessly up or sideways. Full-cutoff fixtures produce minimum glare. They create a pleasant-looking environment. They increase safety because you see illuminated people, cars, and terrain, not dazzling bulbs.
- 3** Install fixtures carefully to maximize their effectiveness on the targeted area and minimize their impact elsewhere. Proper aiming of fixtures is crucial. Most are aimed too high. Try to install them at night, when you can see where all the rays actually go.

Properly aimed and shielded lights may cost more initially, but they save you far more in the long run. They can illuminate your target with a low-wattage bulb just as brightly as a wasteful light does with a high-wattage bulb.

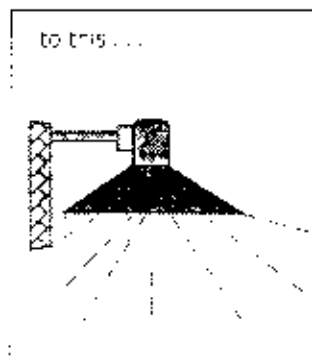
- 4** Choose energy-efficient low-pressure sodium (LPS) or high-pressure sodium (HPS) lamps wherever yellowish light will do the job. Use less efficient white lights only where ideal color rendition is important.
- 5** Where feasible, put lights on timers to turn them off each night after they are no longer needed. Put home security lights on a motion-detector switch, which turns them on only when someone enters the area; this provides a great deterrent effect!

### Replace bad lights with good lights.

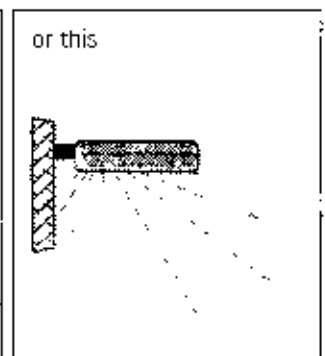
You'll save energy and money. You'll be a good neighbor. And you'll help preserve our view of the stars.



**YARD LIGHT**

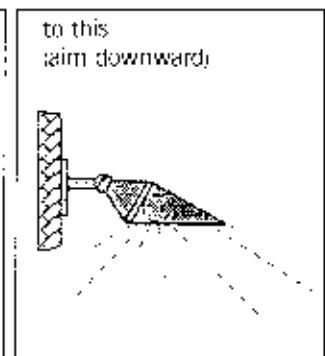
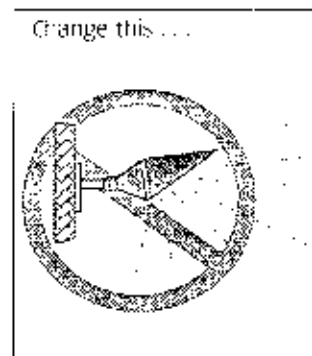


**OPAQUE REFLECTOR**

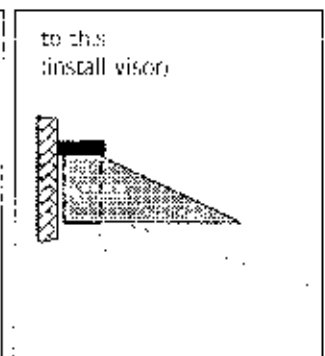
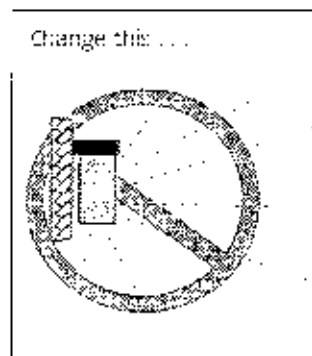


**SHOE BOX**

## What You Can Do To Modify Existing Fixtures



**FLOOD LIGHT**



**WALL PACK**



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**New England Light Pollution Advisory Group (NELPAG)**

(<http://cfa-www.harvard.edu/cfa/ps/nelpag.html>) and

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NELPAG and Sky Publishing Corp. support the

**International Dark-Sky Association (IDA)** (<http://www.darksky.org/>).

We urge all individuals and groups interested in the problems of light pollution and obtrusive lighting to support the IDA and subscribe to its newsletter. IDA membership costs \$30 per year; send your check to IDA, 3225 N. First Avenue, Tucson, AZ 85719, U.S.A.

**Evening Planets:** Venus at mag. 4.6 on March 1 is still very prominent, 36° above setting Sun and setting 3 hours after sundown. But Venus crops rapidly toward Sun as month progresses. Seen from at 40° N, Venus follows Sun over western horizon by 2 hours on March 14, one hour on March 23, and 32 minutes on March 27. Pos. hvs. of Venus at sunrise are shown for March 14, 17, 20, 23, 26, 27, 28. Use binoculars or telescope to observe Venus' crescent phase, which grows finer as it sets but thinner until Venus passes inferior conjunction early on March 29. This month Venus grows in apparent size from 1.1 arcminute across, while illumination illuminated decreases from 20% on March 1, through 19% on Mar. 12, 5% on Mar. 18 & 19, 2% on Mar. 24, in about 1% on Mar. 29. Observe the crescent in daylight in at 5 mag; to avoid contrast against sparkling sky, for Venus' emergence in morning, see first box on p. 46. **Jupiter and Saturn,** 6° in 10° sp. high 1° SW in W at dusk, appear as two bright "stars" in Taurus. Jupiter at mag. -2.3 to -2.1, ranks next in brilliance after Venus. Saturn at mag. -0.2 to zero (with as bright as Jupiter and twice as bright as twinkling 0.3 mag. Aldebaran, eye of the Bull). This constellation offers many striking views for binoculars and telescope: the Hyades and Pleiades star clusters, reddish Aldebaran, nucleus of Jupiter, and rings of Saturn, now tipped 24° from edge on Moon passes through this region twice, as shown in boxes March 1-3 and 26-30.

**Morning Planets:** Mars is in western sky at dawn; see boxes for March 6, 15-18, and 31, showing Mars one hour before sunrise, Mars beg. its month 6° NNW of reddish first mag. Antares, heart of Scorpius, then passes 6° N of that star on March 6, and is 12° ENE of Antares by Mar. 31. The name Antares means "Rival of Mars." But Mars at mag. -0.5 on March 1 already outshines this star, then nearly doubles in brilliance to mag. -0.2 by month's end, when it outshines 2nd mag. Arcturus and Vega. **Mercury** is very low in ESE 45 min before sunrise in first three weeks while brightening from mag. +0.6 to 0.0. It's highest on first weekend and farthest from Sun on Mar. 11; see Mar. 11, 21, 22. **Venus** emerges in morning.

See first box on calendar.

# ©ABRAMS PLANETARIUM SKY CALENDAR MARCH 2001

An aid to enjoying the changing sky

Use this scale to measure angular distances between objects on diagrams below.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
<p>Venus passes 9° above Sun on March 27, so it can be seen 15 min before sunrise and after sunset around then, see calendar. Can you spot Venus in morning before it disappears from evening? Venus' see before Sun by 15 min on Mar. 22, by 30 min on Mar. 23, and by 45 min on April 1 at 40° N. Venus is shown at sunrise Mar. 23, 27, 28, 30, when binoculars show it as thin crescent with horns point 14 north. See calendar for binoculars at Sun.</p> <p><b>Sunday &amp; Monday March 4 &amp; 5.</b>            • Cluster            • Pollux            Venus-Saturn-Jupiter at minimum span for the month in opposition, 4.7°.            Lock again in mid July, when they'll spar only 2.5° in morning sky.</p> <p><b>Monday March 5,</b> one hour after sunset</p> <p>• 46 Lib            Tues 13            Alpha in Ursa            Moon 12            • Spice            • Gamma in Virgo</p> <p><b>Sunday 11</b>            • Beta Cap            • Gamma in Virgo</p> <p><b>Sunday March 11</b>            45 min before sunrise            Stars visible before light brightens.</p> <p><b>Monday March 12</b>            • Alpha Cap            • Gamma Cap</p> <p><b>Monday March 19-21</b>            one hour before sunrise</p> <p>• Beta Cap            • Gamma Cap</p> <p><b>Monday March 26</b>            10° from Sun            Venus rising            Sun            Moon            Venus 10° setting            Sun</p> <p><b>Monday March 26</b> at sunset</p> <p>• Moon            Venus</p>	<p>Follow Mars in com by months as it widens to 20° E of Antares in May then returns to E of Antares in July. Between those dates Mars retrogrades in line. When will it pass on earth and very bright. March 6 isn't too late to begin making photos showing the "double opposition" of Mars with its rival &amp; 13-26, see Feb. Calendar.</p> <p><b>Tuesday March 6,</b> one hour before sunrise</p> <p>• Mars            Antares            5.4° N of Antares            Part of Scorpius            Keep track, and compare to their separations on May 12, July 9.</p> <p><b>Wednesday March 7-9</b>            18 hours before sunrise</p> <p>• Denebula            Moon            Setting WW            Wed 7            Moon            Setting WW            Wed 7</p> <p><b>Thursday March 8</b>            Regulus            W            Thursday through Sunday, March 15-19, one hour before sunrise</p> <p><b>Friday March 9</b>            Moon            Setting WW            Wed 7</p> <p><b>Saturday March 10</b>            Moon            Setting WW            Wed 7</p> <p><b>Sunday March 11</b>            Venus            ESE            Moon            Mercury in 15° E of Sun            17° apart            Venus            17° apart            Sun setting in W            Tues March 20 at sunset            Venus            Sun setting in W            Tues March 20 at sunset</p> <p><b>Monday March 12</b>            Venus            ESE            Moon            Mercury in 15° E of Sun            17° apart            Venus            17° apart            Sun setting in W            Tues March 20 at sunset</p> <p><b>Tuesday March 13</b>            Venus            ESE            Moon            Mercury in 15° E of Sun            17° apart            Venus            17° apart            Sun setting in W            Tues March 20 at sunset</p> <p><b>Wednesday March 14</b>            Venus            ESE            Moon            Mercury in 15° E of Sun            17° apart            Venus            17° apart            Sun setting in W            Tues March 20 at sunset</p> <p><b>Thursday March 15-19</b>            one hour before sunrise</p> <p><b>Friday March 16</b>            Venus            ESE            Moon            Mercury in 15° E of Sun            17° apart            Venus            17° apart   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# March Evening Skies

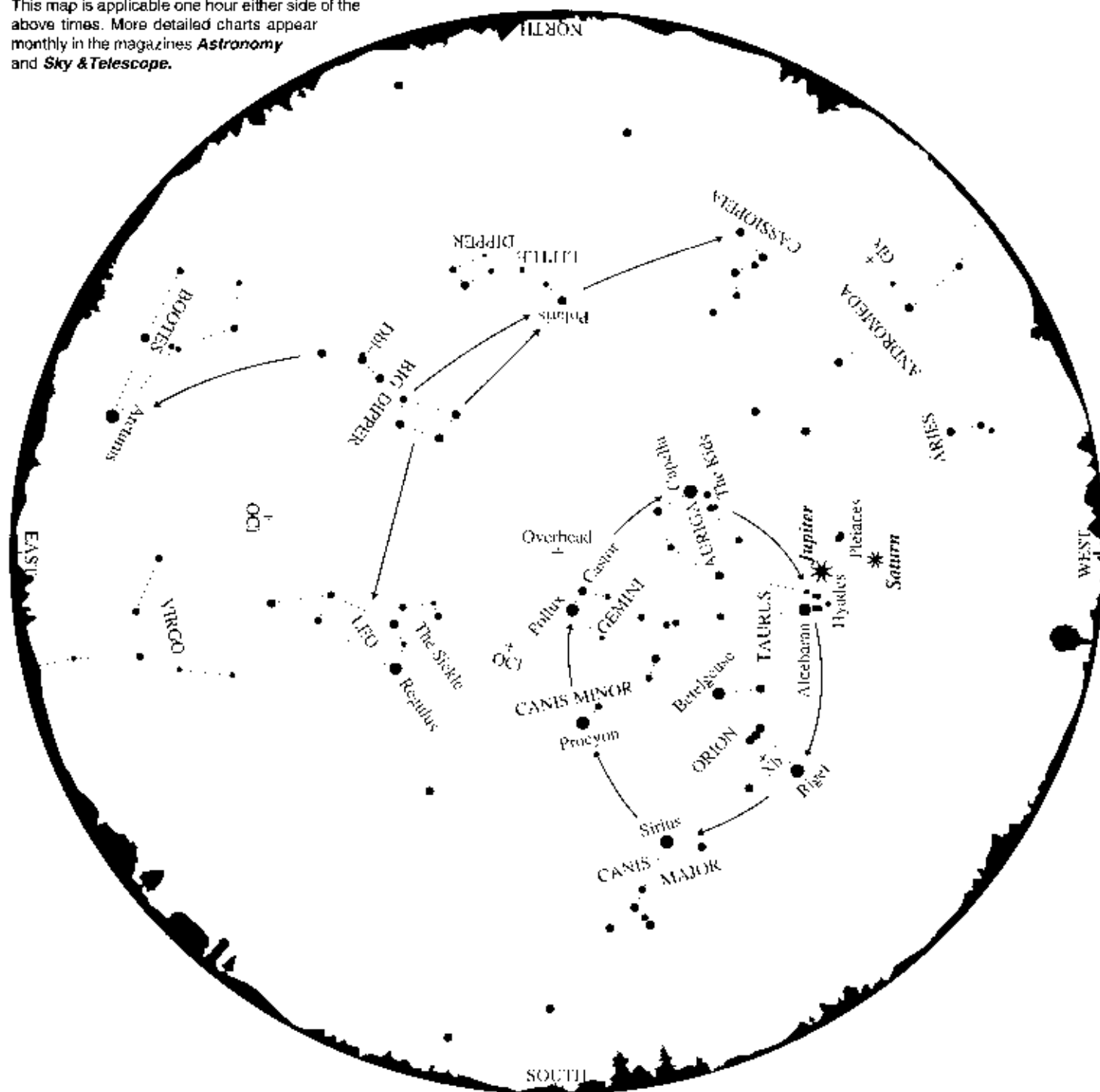
This chart is drawn for latitude 40° north, but should be useful to stargazers throughout the continental United States. It represents the sky at the following local standard times:

Late February	10 p.m.
Early March	9 p.m.
Late March	8 p.m.

This map is applicable one hour either side of the above times. More detailed charts appear monthly in the magazines *Astronomy* and *Sky & Telescope*.

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Abrams Planetarium, Michigan State University,  
East Lansing, MI 48824-1324.



The planets Jupiter and Saturn are plotted for mid-March 2001. At chart time 11 objects of first magnitude or brighter are visible. In order of brightness they are: Jupiter, Sirius, Arcturus, Capella, Rigel, Saturn, Procyon, Betelgeuse, Aldebaran, Pollux, and Regulus. In addition to stars, other objects that should be visible to the unaided eye are labeled on the map. The double star (Db) at the bend of the handle of the Big Dipper is easily detected. The famous Orion Nebula, a cloud of gas and dust out of which stars are forming, is

marked (Nb) in that constellation. The open or galactic star cluster (OCI) known as the "Beehive" can be located between the Gemini twins and Leo. Coma Berenices, "The Hair of Berenice," is another open cluster (OCI), between Leo and Bootes. The position of an external star system, called the Andromeda Galaxy after the constellation in which it appears, is also indicated (Glx). Try to observe these objects with unaided eye and binoculars.

—D. David Batch

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# **Antelope Valley Astronomy Club, Inc.**

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**Monthly Meeting: March 9.**