



East Valley

Astronomy Club

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Treasurer	Bob Kelley	451-7319
Newsletter	Bill Smith/Roy Halverson	831-1520/844-9563

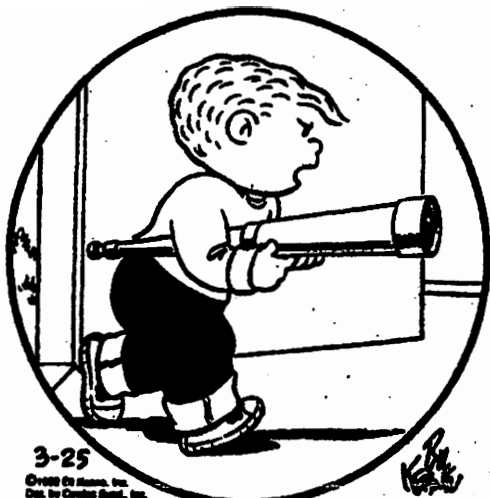
May

Newsletter

1992

EDITOR'S NOTES

THE FAMILY CIRCUS By Bil Keane



3-25

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"Who invented clouds?"

If anyone can think of a better way to express the frustration than the above, please let the editor know!

Phoenix Astronomical Society would like everyone in EVAC know that David Levy will be their speaker Thursday May 14th at Brophy College Prep. Their meeting will begin at 7pm. Additional meetings are scheduled for Aug. 27, Sept. 17, Oct. 15, Nov. 12 and Dec. 17.

MARK YOUR CALENDAR

EVAC BUSINESS MEETINGS

May 13- SCC RoomPS 172

Guest Speaker -Dick Jacobson

June 17 July 15

DEEP SKY STAR PARTIES

May 30th June 27th August 1

Southern site-see map inside.

LOCAL STAR PARTIES

May 23rd -Carefree Site

Call Bob Kelley for instructions.

EVAC NEWS

by Roy Halverson

SHORT TAKES-

The second annual Tucson Amateur Astronomy Association's star party at the Grand Canyon is scheduled for May 30-June 7. For more information, contact the association at 10385 Observatory Drive, Tucson, 85747.

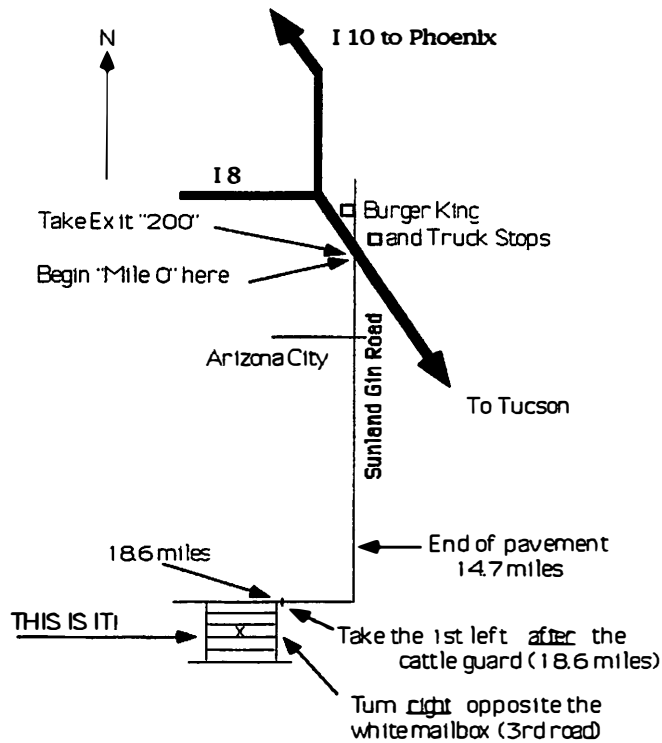
The Astronomical Society of the Grand Canyon may be reached by writing ASGC, PO Box 1515, Grand Canyon, AZ, 86023, or by calling (602)638-2263.

A star party jointly sponsored by EVAC and the Saguaro Astronomy Club (SAC) on April 4 at the Sentinel site drew dozens of amateur astronomers with 31 telescopes, mostly sizable ones. Bob Kelley's 10-inch was one of the smallest with a 22 inch being the biggest! Dick Simmon has promised to show a video of the party at the May business meeting.

The Deep Sky group within EVAC holds most of its star parties at the Arizona City site (also known as the Southern Site.) To avoid long, useless trips when sky conditions are questionable, the club needs a contact in Arizona City whom we can contact about the weather. Please call Bill Smith or Roy Halverson if you know of such a potential helpmate. Usually you can call Ted Heckens on his mobile phone at 1-602-540-0395 and he can give you an on-site report.

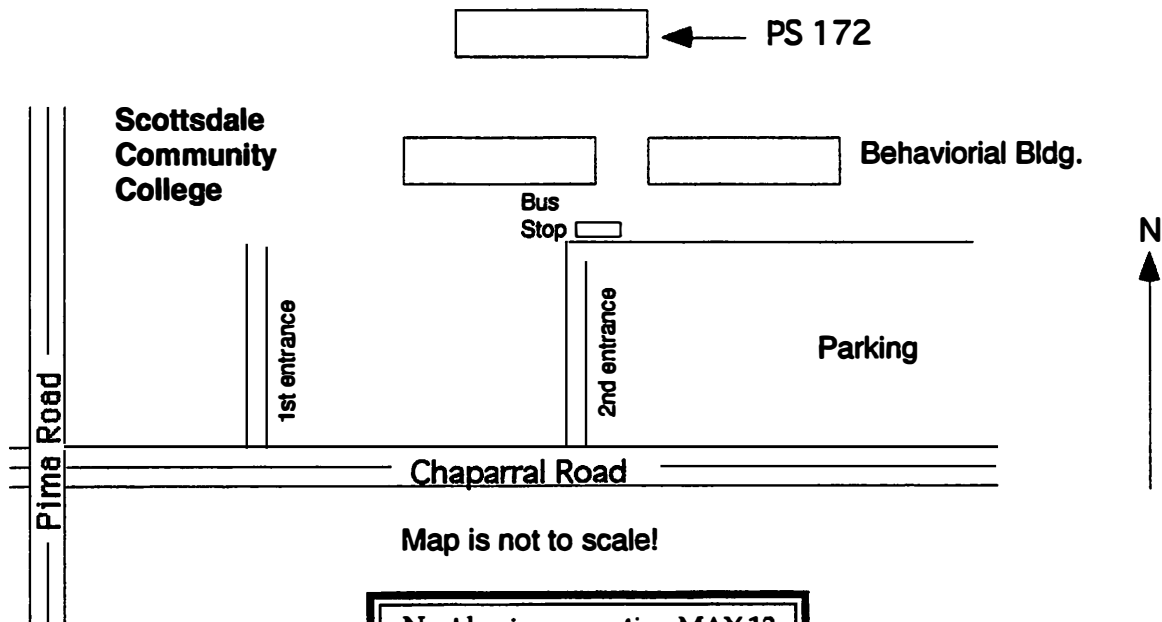
A special interest group of EVAC members who wish to concentrate on

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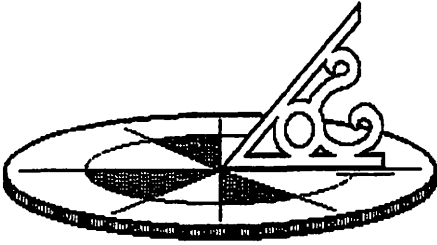
Believe it or not, they named the street opposite the white mailbox:
MOON CHILD!!

MAY 30th - DEEP SKY



Map is not to scale!

Next business meeting MAY 13.
Room PS 172
The speaker will be:
Dick Jacobson



May Highlights 1992 by Byron Scott

Calendar

<i>Day</i>	<i>Date</i>	<i>Event</i>
Fri.	01	May Day
Sat.	02	New Moon
Mon.	04	Eta Quarid Meteor Shower This is the peak day for this meteor shower. The duration for this shower is six days with a rate of 20 meteors per hour.
Fri.	08	Moon at perigee
Sat.	09	Astronomy Day Moon at first quarter
Tue.	12	Pluto at opposition This planet is never brighter than about magnitude 14. If you have a <i>very good</i> telescope, Pluto will be visible between the constellations Serpens Caput and Libra. Because this planet's orbit is strongly elliptical, it has, since 1979, been on our side of Neptune's orbit. Thus, it is closer to the Earth and the Sun than to Neptune for about 20 years. In 1999, Pluto will cross back over Neptune's orbit and once again become our solar system's most distant planet.
Sat.	16	Full Moon
Sun.	17	Mars at perihelion
Mon.	18	Omicron Cetid Meteors
Sat.	23	Moon at apogee
Sun.	24	Last quarter Moon

May Flashback

There was once a time when the American people believed in progress. On May 25, 1962, President John F. Kennedy went to a joint session of Congress to deliver a special message. This was described by him as a second State of the Union address. I believe that speech was the genesis of the American space program. He began, "These are extraordinary times and we must face an extraordinary challenge." He threw down the gauntlet and inspired the American people to use their resources, energies, and spirit to achieve a national goal of landing a man on the moon. He said, "I believe we possess all the resources and talents necessary. I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to earth. No single space project in this period will be more impressive to mankind or more important for the long-range exploration of space. And none will be so difficult or expensive to accomplish . . . In a very real sense, it will not be one man going to the moon . . . it will be an entire nation. For all of us must work to put him there." On July 20, 1969, an American, Neil Armstrong, stepped onto the

m o n .
It was an era when the American people and their elected government representatives knew how to lead and follow . . . but that was long ago.

astrophotography is being formed. Interested members should call Roy Halverson.

Stan Student offered some cogent advice on aligning your telescope on the Pole, essential for long exposure photography. Stan's diagram will appear in a future issue of the newsletter. (Note also the helpful article on pages 69-72 in the May issue of Astronomy.)

PIERRE SCHWAAR'S HOST OF HELPFUL HINTS

Pierre Schwaar, longtime member of the Saguario Astronomy Club and friend of EVAC, offered a handful of helpful suggestions and showed a husky collection of glorious slides at the April business meeting.

He is a mirror and telescope builder and developed the Big Foot mount. His work has been cited at the Riverside, Calif., annual telescope builder's gathering for elegance and utility.

He described his progression through the stages of amateur astronomy, from the ooh-ahh stage to the aperture fever (the bigger the better) stage, to the specialty stage. His slides were the results of piggy-back photography as well as images captured using a wide variety of telescopes he has built.

For piggy-back photographers using a 50 mm lens and wanting to avoid star tracks, 20 seconds is the longest exposure possible without a clock drive, he said. His slides showed surprising detail.

Even more impressive was his image of the Horsehead Nebula taken through his 16" f4.2 scope. That exposure was two hours long.

He showed slides of lunar eclipses, very young moons, planets (Jupiter and Saturn were spectacular), the Orion Nebula, the Lagoon Nebula, the Crab Nebula, the Andromeda Galaxy, the Whirlpool Galaxy and the Pleiades among others.

Schwaar gave ample evidence that simple equipment can capture the beauty of the sky, but showed why most astronomers lust after big mirrors.

Film? Schwaar used Ektachrome Press 1600 for many of his best efforts.

Cleaning lenses is a common necessity, but one fraught with peril. Those delicate surfaces scratch too easily. Schwaar recommended the following process for removable mirrors:

- Place the mirror in a sink and run tepid water on it for a minute or so
- Swab the surface gently with a wet tissue
- With the water still running, put a single drop of dish-washing detergent on the surface and swab some more.

For eyepieces:

- Mix four parts isopropyl alcohol with one part water.
- Dip a tissue in the solution and gently wipe the surface of the eyepiece lens.

To remove grease from eyepieces:

- Using "canned air," blow off loose dust first.
- Then a tiny piece of polystyrene rubbed *very* gently on the lens surface should remove the grease.

Try not to expose eyepieces to dew, its often acidic. Avoid the problems by keeping eyepieces not in use in plastic bags in your pockets.

NEXT MONTH

Dick Jacobson, owner of The Astronomy Shoppe in Cave Creek, will be the guest speaker.

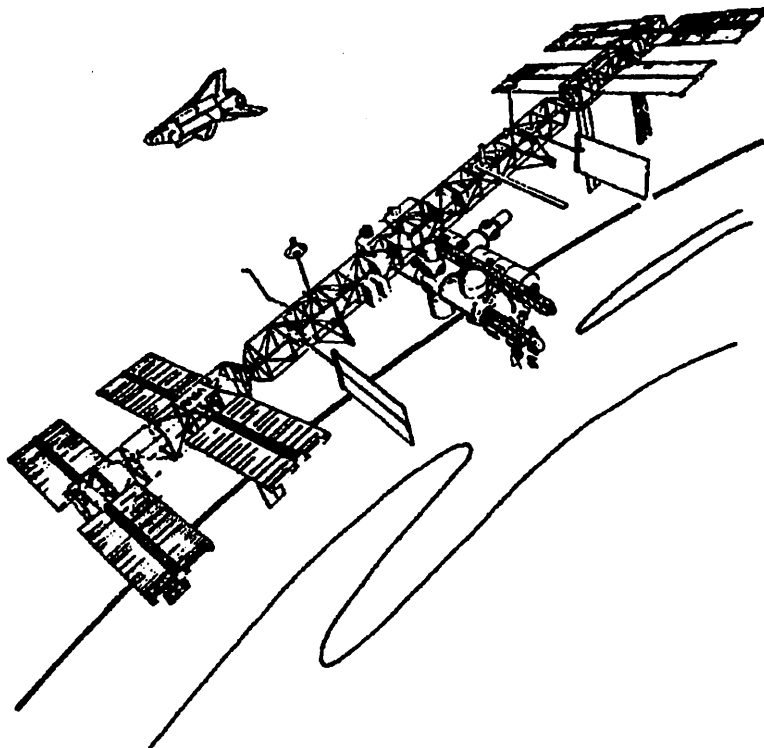
A Night At Sentinel

by Michael Janes

The Star Party planned for Saturday, April 4th started off on a questionable note. The few EVAC members I spoke with were worried about the weather patterns and some decided the two and a half hour drive was not worth the chance of a cloud free night. Upon arriving at the site about 5:00 pm the skies were partly cloudy to the East and receding. Once there I was pleased to see about 14 vehicles and members from the Saguaro Astronomy Club already setting up for this joint star party. Later EVAC members Bob Kelly, Dick Simmon, and Mark Johnston arrived. By the time darkness fell over 35 telescopes were pointed to the sky. Sizes ranged from 17 and 22 inch telescopes brought over from California by Steve Overholt, designer of the Magellan Telescopes now on the market. Many 16 inch scopes were also set-up as were smaller aperture telescopes.

Jupiter was a popular object as always showing a wealth of detail and the great red spot. An exciting glimpse of Leo I, part of the local group of galaxies, was provided by Tom Polakis of SAC in his 13 inch reflector with new enhanced coatings. Other SAC members were busy with work on the Herschel 400 list of objects. Chris Schur, a very talented astrophotographer contributing to Astronomy and Sky & Telescope magazines, displayed his new 16 f/5 newtonian. The scopes light weight design gave it the look of something out the original Star Trek television series. This telescope will be entered at the Riverside Telescope Makers Conference for display and awards.

Winds from the afternoon clouds picked up late in the evening and we left about 12:30 am. Some people stayed in hopes of improved weather which did not happen and left soon after. The evening was very enjoyable and productive. I would encourage anyone in this hobby to try to make a future joint star party. The variety of people and telescopes make the experience a memorable one.



ASTRONOMICAL SOURCES FOR YOUR PERSONAL COMPUTER

by Michael Janes

When cloudy skies or moon filled nights get you down a computer can make a good tool for astronomy. This article assumes a basic knowledge of PC's and that the user also owns a modem. Those of you that use Macintosh or Commodore will have to determine which of the following information is useful. All of these computer systems are free to the user (except long distance charges), unless otherwise noted. I cannot say that these systems do not contain any computer viruses however in the past two years of using them I have not encountered any. The operators of astronomy Bulletin Board Systems (BBS) run virus checking programs to protect their end users from unwanted damage and leave bulletins of new viruses that are lurking about. As for government systems, the programs are generated internally or transferred between sights but do not accept outside programs to be uploaded. If you are fearful of accessing computer networks, and depending on the system at times you should be, one thing to keep in mind is the type of system and people who operate them. Amateur astronomers are generally level headed, cautious, and generous with their information. These same attributes are carried over to the astronomy BBS's as well. So my recommendation is to use the following systems with confidence and enjoy the information they provide.

Fortunately the majority of good astronomy BBS's are located in California which should help on your long distance charges. As you become more familiar with these systems and find the ones which fit your individual needs the connect time can be as little as three to five minutes. The government systems are primarily operated by NASA and most of the information is either planetary exploration or aerospace related. The main areas of interest will be the file and message areas. Most BBS's are well labeled and offer on-line help if you get lost. The files area will be divided into specific topics. Select the topic you want when prompted then select the appropriate command to list the files stored under that topic. Once you find a file you wish to download try to use the Z Modem transfer protocol. This is a faster transfer rate which can save you money on your connect time when downloading large files. As a word of caution do not download a file to your hard disk, instead always download to a floppy. This is to protect your system from a file which may have been tampered with. It is also a good idea to keep a virus scan program on your hard drive and check your new file with it on the floppy. Message sections allow you to leave electronic mail for other amateur astronomers throughout the country which also use the system you are on. Or you can just read messages left by others. Some message sections offer conferences which are ongoing conversations on a specific topic, usually conducted by an individual who runs that conference, and may have international participants. It can be very interesting to talk to an individual in Australia about his or her impression of observing Omega Centauri at the zenith for example. The systems that operate international conferences may be off line during specific times so they may transfer the mail for the conferences. These times will be posted so you will know when not to call them.

The first and best private bbs I can recommend is the **RANCHO PALOS VERDES BBS**. This system is operated by David Ransom Jr. who writes astronomy related software. Two great programs he offers are STS Orbit, a satellite and space shuttle tracking program, and Astroclk. For generating R.A. and Dec. coordinates, size, and

magnitude of the planets for the day you are going to observe Astroclck works great. It also supports comet and asteroid data. The RPV BBS has hundreds of astronomy files and a good message section so try this one first and see what you think.

Another very good bulletin board system is run by the Orange County Astronomy Club of Southern California. Offering an on-line newsletter of the clubs activities the **ORANGE COUNTY ASTRONOMERS BBS** is oriented more towards observational astronomy. Many programs are databases of objects like the NGC Catalog and SAC database catalog which are good for developing your own observing lists. Also this system offers a wide variety of digital images taken with CCD cameras or digitized pictures. These are in the *.GIF format and a program which allows you to view them is also available.

The Northern Virginia Astronomy Club operates the **NOVAC BBS** 24 hours a day. They provide the IAU circulars published daily by the Smithsonian Astrophysical Observatory in Cambridge, Mass. Updates are available about once a week and offer current information on Comets, Asteroids, Supernovae and Novae.

An on-line database of over 300 astronomy files are available from the **KINGMONT ASTRONOMICAL OBSERVATORY BBS**. I recommend downloading the file which is a compilation of all available files and reading it off line. Then call back to get the information you want.

Of the government systems that are available to the amateur astronomer the **NASA SPACELINK BBS** is probably the most commonly used. It provides information on NASA project, planetary exploration, Voyager and Magellan images and teaching resources. Any questions you have about the space program can be left when you finish with the system and they will respond in a timely fashion.

The **NATIONAL SPACE SCIENCE DATA CENTER** in Greenbelt, Maryland is an astronomical data gateway to the professional community. The NSSDC operates the Astronomical Data Center which has 500 astronomical catalogs with on-line access. It also provides a network gateway to data facilities across the country. To enter the system after dialing the number type NSSDC at the first two prompts. Then enter your real name. Next you will have to provide personal information including a business or institute you are related to. This is the only requirement for access and the verification process takes approximately three days. If you do not work for a research related institute or business then list any astronomical affiliations you have like ALPO, Association of Lunar and Planetary Observers, the Astronomical League, etc..

This should give you a start in the PC astronomical community. A few good programs to look for are Phase, a small program that gives the date and phase of the moon. Astroclck, an astronomical clock system. Also watch for the latest edition SKY, a planetarium style program which you can customize. So the next time the moon or weather keep you from the telescope turn to your computer for a night of on-line observing.

NAME	NUMBER	LINE FORMAT
1. Rancho Palos Verdes BBS	1-310-541-7299	2400 N-7-2
2. Orange County Astronomers	1-714-738-4331	1200 N-7-2
3. NOVAC BBS	1-703-256-4777	2400 N-8-1
4. Kingmont Astro. Obs. BBS	1-916-652-5920	1200 E-7-1
5. NASA Spacelink BBS	1-205-895-0028	1200 E-7-1
6. NSSDC	1-301-286-9000	1200 E-7-1

The Deep Sky Notebook

by Robert Kerwin

The Virgo Galaxy Cluster

On any good star atlas, you will notice a great river of galaxies extending from the bowl of the Big Dipper, through Canes Venatici and Coma Berenices and into Virgo. By far the greatest concentration of galaxies is in northern Virgo near the Coma Berenices border. This clump of galaxies marks the center of the Virgo Cluster, the nearest major galaxy cluster. The cluster extends as far north as Canes Venatici and as far south as Corvus. For the amateur with a moderate-size telescope, this cluster of galaxies offers many nights of exploration. This month we will take a look at the core of the Virgo Cluster.

Our first stop is M87. M87 is about eight degrees west and one degree north of ϵ Virginis. This elliptical galaxy appears as a bright circular patch that fades rapidly into the background. Look just to the west of M87 for two smaller and fainter galaxies, NGC 4478 and NGC 4476. Both galaxies appear faint with bright, compact centers. NGC 4476 is fainter and somewhat more elongated than NGC 4478. Now move west a mere 30 arc-minutes to a faint, compact trio of galaxies. The eastern galaxy in the trio is NGC 4440 and is also the brightest of the three. This object is slightly oval and contains a bright core. Just to the northwest lies NGC 4436. In my eight-inch, this galaxy is on the threshold of vision and appears as little more than an oval patch. The western galaxy is NGC 4431. This galaxy is slightly brighter than NGC 4436, but is still a challenging object in moderate-size telescopes.

25 arc-minutes northwest of the galaxy trio is NGC 4413. NGC 4413 appears as a faint oval patch with a slight brightening toward the center. NGC 4425 is about ten arc-minutes northeast of NGC 4413 and appears as a fairly bright, elongated patch with a slightly brighter core. Moving west by 25 arc-minutes, we encounter NGC 4388. This galaxy is bright, elongated east-west and is slightly brighter toward the center. Look just to the north for NGC 4387, a faint, slightly oval galaxy with a faint nucleus. Just to the west is bright M84. This galaxy is an elliptical, so it appears rather featureless in amateur instruments. The surface brightness increases rapidly to an intense core. Now move slightly east to another bright galaxy, M86. M86 appears slightly larger than M84 and has a

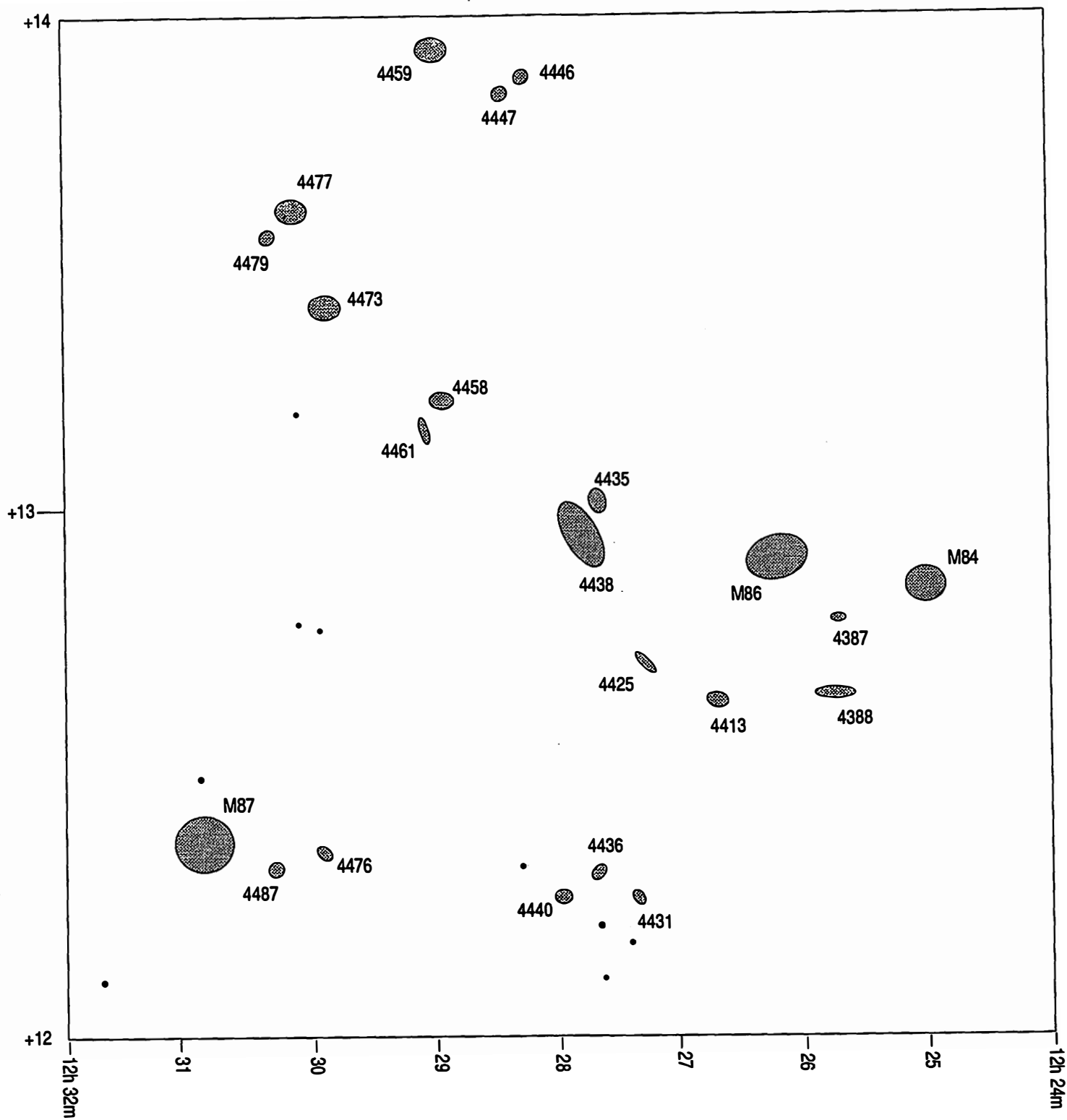
small, bright nucleus. The galaxy's light fades slowly and smoothly to the background.

Continuing northward, look for NGC 4402. This galaxy is very elongated and has no central brightening. About 25 arc-minutes east lies NGC 4438, which appears as a bright, elongated glow with a bright, diffuse core. Look just to the north for NGC 4435, a bright but much smaller galaxy. The proximity of these two galaxies is not a chance alignment; the galaxies are actually interacting. Our final stop is another pair of galaxies, NGC 4458 and NGC 4461, just 25 arc-minutes northeast of NGC 4438. Both galaxies are elongated in nearly the same direction (north-south). NGC 4461 is the larger and brighter of the two; its core also appears brighter than that of NGC 4458.

Virgo Galaxy Cluster

Tirion chart: 14
U2000 chart: 193

Name	Type	Mag	Size	R.A.	Dec.
M87	g	8.6	7.2	12h 28m	+12.7
NGC 4478	g	11.2	2.0	12h 28m	+12.6
NGC 4476	g	12.3	1.9	12h 28m	+12.6
NGC 4440	g	11.8	2.0	12h 25m	+12.6
NGC 4436	g	13.5	1.9	12h 25m	+12.6
NGC 4431	g	13.2	2.0	12h 25m	+12.6
NGC 4413	g	13.0	2.5	12h 24m	+12.9
NGC 4425	g	11.8	3.4	12h 25m	+13.0
NGC 4388	g	11.2	5.1	12h 23m	+12.9
NGC 4387	g	12.0	1.9	12h 23m	+13.1
M84	g	9.3	5.0	12h 23m	+13.2
M86	g	9.2	7.4	12h 24m	+13.2
NGC 4402	g	11.3	4.1	12h 24m	+13.4
NGC 4438	g	10.0	9.3	12h 25m	+13.3
NGC 4435	g	10.8	3.0	12h 25m	+13.3
NGC 4461	g	11.2	3.7	12h 27m	+13.5
NGC 4458	g	12.1	1.9	12h 26m	+13.5



Finder Chart for Central Part of the Virgo Galaxy Cluster

