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NOVAC
THE NEWSLETTER OF
THE NORTHERN VIRGINIA
ASTRONOMY CLUB
MARCH 2013

Finishing up the Arps

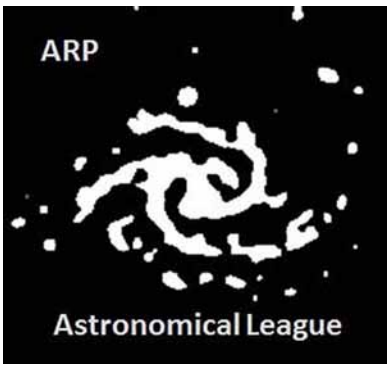
by Robert Bunge

In 1999, my long time observing friend Brent Archinal moved from the Washington DC area to Arizona. Brent had always provided lists of challenging objects to look at, while I provided a home-built 20-inch f/6.4 telescope nicknamed "TJ". When Brent moved, I wanted an easy-to-create list of difficult objects to tackle. The Astronomical League's (AL) Arp Peculiar Galaxy Observing Club list of 338 objects, many of them very faint, looked interesting. (**http://www.astroleague.org/al/obsclubs/arppec/arppec.html**) I've always taken a fancy to observing galaxies, globular clusters and Mars.

In the early 1990s I had tracked down and observed almost all globular clusters visible from the northern hemisphere (and a few from the southern). From 1980 to 1993, I had observed several hundred galaxies in a number of telescopes, from 6 to 31 inches. I had kept notes on the majority of these, but only made drawings of a few. I knew I had seen a number of the Arp galaxies during this time frame, but decided on a fresh start.

To get the AL Arp (visual) certificate you need to observe and provide notes on 100 of the galaxies. To make it more challenging, I decided to observe all 338 objects and draw each of them. Took about 3 years to get the first 100 objects and earn the award. Turned out this was the easy part, partly because I tended to observe the brighter objects on the list.

The project started June 11, 1999 at Tuckahoe State Park, MD and ended November 21, 2009 also at Tuckahoe State Park. To make the end of year self imposed deadline for the AL Arp pin, I used four observations/drawings made in 1988 and 1989. These earlier observations were made using the 31 inch telescope at Warren Rupp Observatory in Ohio. I did not count these observations as the start of my observing program. Later, I observed several more objects with this amazing telescope.



Astronomical League Arp Pin

Over the course of the project, five telescopes were used:

- 6 inch f/5 travel scope: 7 objects
- 12.25 inch f/5.4 "Ellie" suitcase telescope: 20 objects
- 18 inch f/5 Obsession: 4 objects (borrowed on a night I was unable to set up my 20 inch)
- 20 inch f/6.4 "TJ": 298 objects (ye 'ld work horse!)
- 31 inch f/7: 9 objects

The *NOVAC Newsletter* is the official publication of the Northern Virginia Astronomy Club and is published quarterly. The NOVAC Newsletter is available to members of NOVAC as a regular membership benefit.

Membership

Membership in the Northern Virginia Astronomy Club is $25.00 per year and is open to anyone interested in astronomy or the sciences. Additional memberships at the same address without additional copies of the newsletter are $5.00 per person. Membership in the Astronomical League is included with NOVAC membership and includes the *Reflector* magazine plus access to their Observing Awards.

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Submissions to the newsletter

NOVAC members are invited to submit articles for publication in the *NOVAC Newsletter*. The editor reserves the right to edit all materials submitted. Send article submissions to the Editor, Chris Lee, at newsletters@novac.com.

Finishing up the Arps *continued from p. 1*

Most observing sites used are within a few hours drive from my home in Bowie, MD, but a few were distant star parties:

- Big Meadows, Shenandoah National Park, VA: 12 objects
- Camp Highroad, Loudoun County, VA: 1 object
- CM Crockett Park, Catlet, VA: 13 objects
- Delmarva Star Party, Tuckahoe State Park, MD: 47 objects (3 events)
- Laurel Highlands Star Cruise, Hazelton, WV: 17 objects (two nights)
- Mansperger Family Farm, Pasco, WA: 1 object
- Nanjemoy Observatory, NCEEC, Charles County, MD: 5 objects
- Oregon Star Party: 6 objects
- Sky Line Drive, Shenandoah National Park, VA: 9 objects (night of the 2001 Leonids!)
- Southern Park, Charles County, MD: 54 objects (a favorite winter time site)
- Table Mountain Star Party, Ellensburg, WA: 20 objects (two events)
- Tuckahoe State Park, Queen Anne, MD: 146 objects
- Warren Rupp Observatory, Mansfield, OH: 9 objects
- Winter Star Party, West Summerland Key, FL: 8 objects

photo credit NASA.gov

Arp 78

The first few objects were found using only the digital setting circles (DSC) on the 20 inch. This proved to be very difficult since I had to manually cross reference between Arp numbers and NGC numbers (and not all Arp galaxies are in the NGC catalog!). Clearly another method was needed—hopefully one that would not require toting large paper star atlases.

In 2000, I wired up an old laptop running *MegaStar* to work with the DSC's. Since *MegaStar* had the Arp catalog, it was a natural. Better yet, *MegaStar* would allow me to pin point the location of the object against foreground stars.

Even with this set up, opportunities to visit distant star parties arrived, so I reserved some brighter objects for these events using smaller travel telescopes, first a 6 inch and later a 12 inch.

Most nights I would manage to find 6 to 8 objects. On outstanding nights, I would find 12 to 15 objects. There were a number of objects I had to observe several times, either because I was unable to find them, or the observing conditions didn't allow me to see the objects.

One night, the kind folks of the Southern Maryland Astronomical Society (**http://www.smas.us**) hosted me at their wonderful Nanjemoy Creek Observatory in southern Maryland. But I suspect they found my single focused obsession with extreme faint fuzzies (my wife came to call my observing method "inverted imagination") odd.

Another night of extreme memory was arriving on Sky Line Drive the evening before the 2001 Leonids. The evening began with setting up at one of the over look parking lots, observing for several hours, then crawling into a warm sleeping bag beneath "TJ" to watch the amazing meteor storm that followed. Later, just before dawn, I climbed out of the bag to discover the parking lot and even Sky Line Drive grid locked with dozens of cars and fog a mere 100 feet below the ridge.

Seven years into the project, I realized I mostly had spring time objects left. Year eight was spent hoping for a clear spring

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Message from the President

NOVAC president, Phil Wherry

I was delighted to be asked a couple of weeks ago to write a column for this issue of NOVAC's newsletter, which returns as a quarterly publication after a long hiatus.

2013 is off to a very good start for NOVAC.

The club has been steadily growing over the last several years; we now stand at over 1,100 members. We're fairly sure that NOVAC is the largest regional observing club in the world (and, for that matter, the known universe!)

The newsletter you're reading is part of a larger integrated communication strategy for the club. We're working to ensure that members and the public have easy access to event information, features, and reference material.

Everything that happens in NOVAC—from large events like Astronomy Day and Star Gaze to informal one-on-one public outreach—is the direct result of our members' willingness to share their time and expertise generously. It's incredibly pleasing to see the breadth and quality of these efforts within the club.

Our immediate past president, Paul Derby, led a very successful effort to increase our relevance on social media platforms. Chris Lee, our hardworking communication director, modernized our website and added many new capabilities. Deb Stover contributed this beautiful new design for the newsletter as well as the effort required to lay it out. Elizabeth Erickson is taking our public outreach program to the next level with great enthusiasm and attention to detail. Bob Traube is gearing up for our monthly observing program at The Mountain Institute.

And these are just a few recent examples; even if this column consumed the entire newsletter, there wouldn't be enough room to talk about every great thing happening in the club.

So I'll just sum up by saying that I couldn't be more proud to be a part of this group.

Please enjoy this issue of the newsletter, and join me in thanking the team who put it together. I look forward to seeing you at meetings and on the observing field as we give life to the club's slogan: "to observe and help others observe." Thanks for being a member. ✶

2013 Astronomy Events

May 11
Astronomy Day
Sky Meadows State Park
Delaplane, VA

Sept. 6 – 10
Almost Heaven Star Party (AHSP)
The Mountain Institute (TMI), WV

August 10
Turner Mountain Public Night
Turner Mountain,
The Plains, VA

October 2
Star Gaze
Crockett Park
Catlet, VA

Upcoming Meetings

March 10, 2013

April 14, 2013

May 5, 2013

Monthly meetings are normally held at 7 p.m. on the second Sunday of each month in Room 163 of the Research Building on the campus of George Mason University.

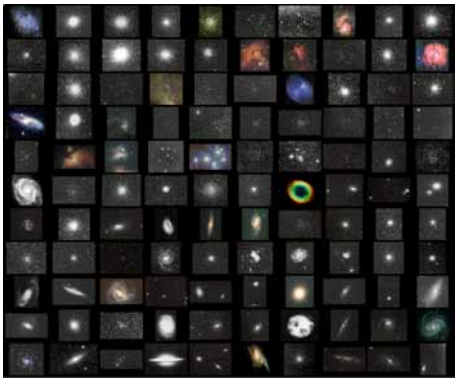
Find more info at www.NOVAC.com

Messier Marathons by Cal Powell

What caused me to undertake the catalog was the nebula I discovered above the southern horn of Taurus on September 12, 1758, whilst observing the comet of that year. This nebula had such a resemblance to a comet in its form and brightness that I endeavored to find others, so that astronomers would no more confuse these same nebulae with comets just beginning to appear.—***Charles Messier***

Having observed and described 44 of the 50 comets visible from 1758 to 1806, the French astronomer Charles Messier (1730–1817) was arguably the greatest comet hunter of his day. One of the great challenges in this endeavor was the presence of pesky faint and fuzzy objects that looked very similar to comets. As an aid to him and other comet hunters, Messier decided to create a catalog of these non-comets as things to avoid. It turns out that this list contains most of the brightest deep-sky objects for observers in the mid-Northern latitudes, and these "M-objects" have inspired observers from William Herschel to today's stargazers.

The classic Messier Marathon is an all-night endurance event where the goal is to observe all 110 Messier objects between sundown and the next sunrise. If you order the list by right ascension (RA), you will find that there is a gap between approximately 21h40m and 0h40m. The Sun will interfere with the fewest M-objects when it occupies this gap; as a result, the best date for a Messier Marathon is a weekend between the end of February and the beginning of April that is close to the new Moon.



At minimum, a good Messier Marathon observing site would have fairly dark skies, and near horizon views to the West, Southeast, and South. The well-prepared marathoner will have warm clothing, a red light source, star charts, an M-object checklist (roughly in RA order from M74 to M30), and a telescope. Start when it is dark enough to see the Pleiades and work your way through the list by star-hopping (real marathoners don't use computer-assisted locating). For crowded deep-sky areas (such as the Coma-Virgo galaxy cluster) it is helpful to have a partner and use a pilot/navigator system. At the latitude of Northern Virginia, it is possible to observe 109 of the 110 M-objects in one night.

For those of you who would rather do your marathon-ing from the comfort of your homes, Dr. Gianluca Masi of the Bellatrix Observatory in Italy hosts an annual "Virtual" Messier Marathon that is free and open to the public. Gianluca hosts

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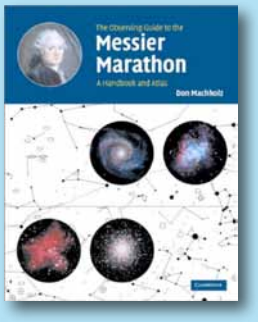
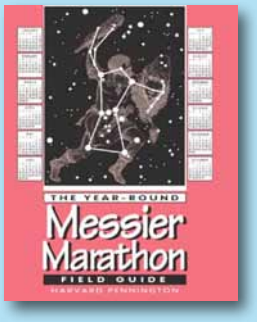
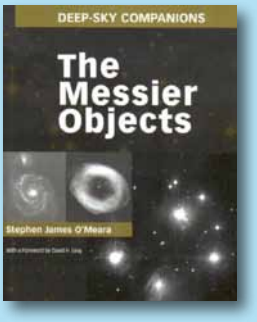
You can consult the following books and web sites for more information



The Observing Guide to the Messier Marathon—A Handbook and Atlas
by Don Machhholz



The Year-Round Messier Marathon Field Guide
by Harvard Pennington



The Messier Objects
by Stephen James O'Meara

http://messier.seds.org/

http://www.messier.obspm.fr/xtra/history/m-cat.html

http://www.greenhawkobservatory.com/#!messier-download

http://www.richardbell.net/marathon.html

The Winter Star Party February 2013 • Scout Key, FL

By Bob Traube

Imagine! Warm, summer-like nights spent observing the Winter's favorite objects and basking on the beach while discussing the latest astro-gear, news, and achievements with several hundred like-minded amateur astronomers. Add to that a bonus of being able to see some of the most spectacular objects that are normally not available to us "Northern" observers, and you've got a pretty good idea of what it's like to attend the Winter Star Party.

The Winter Star Party, or WSP, has been hosted by the Southern Cross Astronomical Society (SCAS) each year for the past 29 years. It is held during a New Moon week in February at Camp Wesumkee on Scout Key, Florida, about 30 miles East of Key West. This southern location provides excellent views from the zenith down to Southern horizon. While there are some palm trees to the North, and minor light domes to the East and West, the view to the South is the main attraction with nothing but ocean and Cuba 90 miles away. The ocean topography enhances the stability of the air and creates the steady seeing for which the WSP is so famous. With nothing to disturb the atmosphere for hundreds of miles, the flow becomes laminar and can support unbelievable magnification if you have the right equipment. Some attendees speak of seeing details on the moons of Jupiter!

Other fascinating sights include the zero magnitude star Canopus, the Jewel Box cluster (NGC 4755), the Southern Pleiades (IC 2602), the Running Chicken Nebula (IC 2948), and Scorpius rising vertically on its tail as morning approaches. The list of "good stuff" just goes on and on.

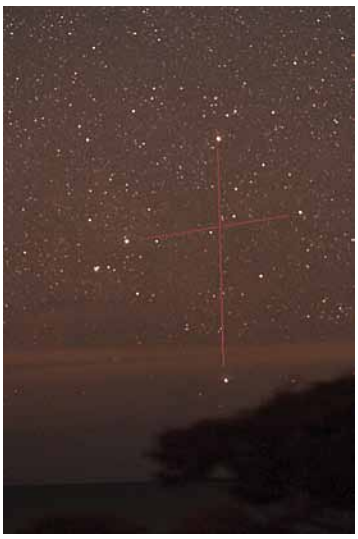
Most people who attend the WSP set up camp on the beach or under the surrounding trees. Some bring their RVs, while still others stay in local motels. There are lots of options. There are hot showers, real flush toilets (along with strategically distributed port-a-johns), 120 volt power, and "Micky's Kitchen" – the 24/7 mobile kitchen that provides hot food, good coffee and other drinks, and their amazing, world-famous brownies. Coffee and a warm brownie at 3 am under the stars – man, you can't beat it.

During the day there are plenty of things to do at the WSP. Daily lectures by

Good seeing is only the beginning…Scout Key is about 14 degrees of latitude south of the DC area. This opens a section of the sky that holds some pretty amazing sights:

Omega Centauri (NGC 5139), a globular cluster one third the diameter of the full moon and three times the size of M13

Centaurus A (NGC 5128) , the fifth brightest galaxy in the sky at Mag 7



The mythical and musical asterism, the Southern Cross ("When you see the Southern Cross for the first time…")

Eta Carinae (NGC 3372), aka the "Key Hole Nebula," a bright nebula four times larger than the Orion nebula and harboring one of the most massive stars in our galaxy

Imaging at the WSP is fantastic. Long winter nights and steady skies make for clear, deep exposures. Here is my entry for the 2013 WSP Astrophoto Contest. And, no, I didn't win – again!

astronomers and scientists provide interesting and useful insights to the adult participants. The younger folk, ages 5 to 15, may choose to participate in the Young Astronomers Club. These "YACkers" meet every morning from 10:00 am to 12:00 noon for daytime activities, talks, workshops, and explorations, and again in the evening from dusk to about 9:30 pm for sky tours, telescope work, and viewing.

The vendor area boasts many major players in the astronomy business, and this year the list included Televue, Hands On Optics, DiscMounts, Astronomy to Go, Astro-Gizmos, Camera Concepts, and many more. You can get, or give, advice to the Gurus that usually attend like Al Nagler, Tom Peters, and Howie Glatter to name a few.

Wednesday afternoon brings the traditional Ice Cream Social with ice cream and toppings for all – it's a good way to take a break from everything and just chat with folks.

By Friday EVERYONE is ready for the Door Prize Drawing. Nearly a hundred items, including telescopes, eyepieces, filters, and other treasures totaling many thousands of dollars are donated by the various sponsors and vendors supporting the WSP. These are all given away in a "must be present to win" drawing. Among the grand prizes this year were a 10 in. Astro-Tec Imaging Newtonian from Astronomics, a 13mm Ethos eyepiece from Televue, and a Perseus AT150mm F/8 Refractor from I-Star Optical. Not bad, except I didn't win any of them.

If you're looking for something non-astronomy related to do while you're down there, consider the neighboring Bahia Honda State Park for swimming and snorkeling, Key West with all its shops, fishing, diving, and, beverage choices, and even Kennedy Space Center on your way to or from the WSP.

This was my third consecutive year at the WSP. Three other NOVAC regulars attended, so you'll likely see some old friends there and meet some new ones as well.

Prices for this year's admission tickets, camping spaces, and RV spots can be found on the WSP website listed at the end of this article. Next year the WSP will be held February 24 – March 2, 2014 and fees may change so check their website regularly. SCAS has said they are already planning a few surprises for this 30th Anniversary Winter Star Party. I hope to go back again and highly recommend it.

So if you're in the mood for a "latitude adjustment" and if you don't mind missing the Winter cold, blowing snow, and scintillating nights of Northern Virginia in February, I'm confident you will have a great time. ✶

WSP

Useful Links:

Winter Star Party Main Page:
http://www.scas.org/wsp.html

Clear Sky Chart:
http://cleardarksky.com/c/Winter_Star_Partykey.html

Google Map of Camp Wesumkee:
http://tinyurl.com/bzkwcuw

NOVAC members Arlen Raasch (left) and Bob Traube at the Winter Star Party in February 2013.

Random Walks

Choices by Terry Cabell

Some years ago, in an astronomy forum I visit occasionally, a member posted a question asking if any of us thought of ourselves as elitist. Astronomy is a unique hobby, and his question got me to thinking. So, I first did some research. It turns out that "elite" is a word derived from its Latin root "eligere" or "to choose."according to the *Merriam Webster Dictionary*. Perhaps it does not. But Merriam thinks it so, and that led me in turn to ponder further on the topic a bit.

As amateur astronomers we choose to look out into the night sky. By one definition that might make us an elite, but only in the narrowest sense. Our choice as amateur astronomers to do what we do is really quite striking. In conversations none of us has remarked upon it because it may be we don't consider it. Just like high iron workers who walk unconcerned across i-beams hanging suspended in the air far above the Earth, we placidly look out into an infinite void seeking faint whispers of light suspended in the limitless reaches of time and space—far beyond our ability truly to comprehend their place.

And we find this *relaxing*?

We find it enjoyable to know that we perch on the tiniest of rocky balls, hanging unsupported in a vastness so huge no mind can contain it, and we strive to see more clearly, to discover more objects, to see *farther*?

We calmly, sedately cast our eyes about the Heavens seeking glimpses of objects whose light that we see, in some cases, was first born before Humanity existed? And we think fortunate those few of us who have the chance to look upon it all with even larger instruments; at objects so far away that their light left to reach us before the very Earth upon which we stand coalesced out of the detritus of exploded stars?

As recreational amateur astronomers, we elect—we *choose*—to contemplate Infinity without fear. Indeed, we all wish each other "clear skies" so we can gaze more often upon the incomprehensibly distant features of our Universe—so far away that our very existence will be long forgotten in the time it takes for the light leaving those features today (whatever that means) to reach our world.

We accept this, looking through instruments, or just with our eyes, staring out, or down, or up into the Void—we know our orientation is strictly arbitrary. Many of us share the experience with others uninitiated. But rest assured that for most people, or rather the vast majority of Humanity, if they understood the size and scope of our Universe, if they truly spent the time we spend trying to see just that little bit more, may haps their minds would be troubled and their hearts made afraid.

That it is we who remain unperturbed in our choice, our election, perhaps does make us elite in just a small way. If so, then for those of us who think upon that which we see, it is to be a member of an elite whose most salient quality is *humility.* To stand out under the night sky and gaze upon all of Time and Space—knowing it to be so—is, to my mind at least, a special form of courage. Perhaps the courage of a childlike wonder, perhaps the courage of a mind willing to explore the Greatest Unknown, or perhaps the courage of someone who simply contemplates the beauty of this grand tapestry, accepting implicitly—unconsciously—the knowledge that understanding our place within it will most probably remain a mystery all his, or her, life.

Novac members include scientists, engineers, janitors, managers, doctors, lawyers, long haul truckers, scholars, students, teachers, white collar, blue collar, all manner of flotsam and jetsam, ragtags and bobtails, people from countless walks of life and from every corner of the world. But we do have this one characteristic in common: we are willing to look upon the Universe in the deepest of night and remain unafraid.

On my desk at home I have a tiny picture of a Moebius strip floating above an alien shore. Underneath are the words of Elias Canetti, "In Eternity everything is just beginning."

Clearest of skies to you all. ✶

Messier Marathons
Continued from p 4

this event in English and there is a live chat room where people from all over the globe can comment and ask questions. For more information, go to **http://www.virtualtelescope.eu/** or Facebook where you can friend Gianluca via the "Virtual Telescope" and get regular updates on his free events.

The benefits of participating in a Messier Marathon include renewing acquaintances with familiar deep-sky objects, making new M-object "friends," camaraderie with other marathoners, and possibly seeing more deep-sky objects in one night than you have ever seen before. And don't forget to log and submit your observations to the Astronomical League for their Messier observing program certificates. ✶

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Blast from the past—*This article originally appeared in the May/June 1991 issue of the NOVAC Newletter.*

Minis Can Be Fun by Al Schumann

George Uhl came up with the idea. We were putting the finishing touches on telescope polar alignment and waiting for full dark when he blurted, "This would be a great night for a Messier Marathon; new moon, good skies and close to the equinox...what do you say?"

For the briefest moment there was dead silence. Chuck stopped sighting in the new Telrad on his Astra Physics turbo charged Belchfire V-8 refractor. Steve almost dumped hot coffee down the tube of his new 13 inch Dobsonian. Stunned, I reeled against the tailgate of the old Green Hornet. Gus the Dog dropped his Frisbee.

The moment passed. What a great idea. Saturday night. March 16 was a beauty at Crockett Park. There was even a slight breeze to keep the dew monster at bay. So, as soon as twilight began to fade, the race was on.

The first few objects in a Messier marathon are a real challenge because you still fight the last bit of twilight. Also, the objects are getting low in the western sky and there is a lot of atmosphere to peer through. If you start looking for the wrong thing first, your whole program might be doomed before you really get going. Therefore, we used Brent Archinal's March1982 Deep Sky article "The Messier Marathon" as our guide for the best sequence of objects to observe. Averted vision and lots of luck are also required.

M-74, a spiral galaxy in Pisces, was number one on the hit parade. I was very lucky and found it straight away; just the faintest patch of light which moved a bit in the eyepiece when I tapped the telescope. George struggled with it for quite a while before nailing that one down.

M-77 was next; a spiral galaxy in Cetus, and a little easier to see.

Then it was dark, and the early panic subsided. M-79, the first globular cluster, fell into the bag. Three galaxies in Andromeda were big confidence builders as we raced through M-31, 32 and 110 (NGC 205).

Omigod! The panic returned with M-33 in Triangulum. That face-on spiral galaxy looks so pretty in photographs, but because of its low surface brightness it can be a tricky target even when high in the sky. When low down in the west, it's a real corker. I have looked at M-33 hundreds of times, so I knew it was dead center in the eyepiece. It took averted vision, putting a coat over my head to eliminate all stray light, rolling the declination knob up and down and a touch of imagination to nail that sucker down. I didn't think of it at the time, but it probably would have been easier to see that little rascal in the 8 X 50 finder scope.

After that, we went wild. The next two-dozen items went into the bag faster than the Iraqi army could surrender. We roared through Perseus, Orion, Canis Major, Puppis, Monoceros, Hydra, Gemini and Cancer. Auriga was great; M-37, 36, & 38, three open clusters, bang, bang, bang. Leo was fantastic. Five galaxies in almost as many minutes plus NGC 2903 (off the tip of the sickle) for a bonus ...no extra charge.

Brent's schedule called for Ursa Major next, and that is always agony for me. A fork mounted Schmidt-Cassegrain is no fun when you are working to the north. It takes a contortionist to twist around and crawl through the fork in order to get to the eyepiece. But nobody ever said this was easy. M-81 and 82 were together in a low power field of view. M-108 & 97 were nice challenges, but sort of ho-hum to look at. M-40, that celebrated double star. What a joke. Then came M101. George found it right away and rubbed my nose in the dirt by finding the spurious M-102 as well. Ultimately, I found a slight smudge where 101was supposed to be. I passed on the new M-102 (NGC5866).

Midnight. We sneaked into the Coma and Virgo dusters of galaxies. We were really on a roll. And then came the big mistake. We took a break. As a career soldier I should have known better. You NEVER stop advancing when you reach the river; you ALWAYS cross the river first. After a sandwich and a cup of coffee it was all over. The Virgo river was still in front of us. The cold had started to dull our senses, and the wearies took charge. George mumbled something about high clouds, and I agreed wholeheartedly... We started packing it in.

What was the count? My tally came to 47. George, who picked off the extra M-102, ended up with 48. Not bad for an unplanned, spur of the moment piece of business. And perhaps it was a good place to stop. Later in the spring we just might pick up where we left off ... when Virgo is up at a more decent hour. Then, too, we won't be struggling with morning twilight to get M-30 the last jewel in the crown.

Overall, it was a fine exercise. Marathoning has a way of focusing your attention, pushing your telescope handling techniques and honing one's observing skills. Beyond that, of course, minis can be fun.✶

"To observe, and to help others observe"

NOVAC is a non-profit, all-volunteer organization chartered to advance amateur astronomy in Northern Virginia. Member benefits:

Access to dark sky observing sites
NOVAC maintains agreements that provide club members with year-round access to observing sites away from city lights. **www.novac.com/wp/observing/**

Monthly meetings
Monthly meetings are normally held at 7 p.m. on the second Sunday of each month in Room 163 of the Research Building on the campus of George Mason University. Each meeting features a lecture on an interesting topic by a local expert. See the meeting web page or future newsletters for a schedule of speakers. **www.novac.com/wp/outreach/meetings/**

Quarterly newsletter
The NOVAC newsletter provides information specifically for NOVAC members, as well as general interest articles on such topics as observing reports, equipment reviews, upcoming events, ATM projects, and more. **www.novac.com/wp/members/newsletter/**

High-quality telescopes to borrow
NOVAC members may borrow one of the clubs several "loaner" telescopes at no charge. Members may choose from among three 6 in. reflectors, two 10 in. f/6 reflectors, an 8 in. SCT, and a hydrogen-alpha solar scope. Binoculars are also available for loan. **www.novac.com/wp/members/loaner-scope/**

Club website
Up to date information about club events and activities is maintained on the club website at **www.novac.com**.

Large club library
NOVAC maintains a well stocked library that members may borrow from by contacting John Deriso (**librarian@novac.com**). A full list of titles is available on the club website. **www.novac.com/wp/members/library**

Private email listserv
Members keep up with current club information by subscribing to the NOVAC email list, without fear of flame wars or spam emails.

Public outreach opportunities
Several times each year, volunteers from NOVAC present astronomy programs to schools, churches, Scout troops, and other public groups. Contact **outreach@novac.com** or fill out the outreach form on the NOVAC website to request a program or help supporting an event. **www.novac.com/wp/outreach/outreach-form/**

Membership in the Astronomical League
Through NOVAC's membership in the Astronomical League (AL), NOVAC members gain access to the AL's newsletter, services, and observing programs**. www.astroleague.org**

Discounts on astronomy magazines
Subscriptions to *Sky & Telescope* and *Astronomy* magazines are offered to club members at a considerable discount. Contact Kent Allingham: **membership@novac.com**

Mentor Program
Young or old, new or experienced, this program is for everybody. If you would like to meet with a mentor, think you would like to be a mentor, or have any questions about the program, contact: **mentor@novac.com**.

See your Membership Guide for more details about member benefits.
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Finishing up the Arps
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evening. Of course, that didn't work too well, so starting year nine, I bit the bullet and looked for clear winter mornings, adapting to arriving at the observing site around midnight. I hadn't observed in sub-freezing temperatures for several years and never with computers, batteries and DSC's. Some what relieved, I discovered my system—the telescope and electronics—handled the cold just fine. The old tricks of layering clothes and consuming plenty of calories worked in my 40s just as they had done in my 20s (although I didn't end up observing in snow as I did many times in Ohio during the 1980s).

Also in year seven, I started drawing the entire AL Herschel 400 list when there weren't any Arp objects around. During the 2008 Delmarva No Frills Star Party I had a banner night, recording well over 30 summer/fall Herschel objects. Feeling victory, I put the telescope to bed in the wee hours, only to realize too late the last three remaining Arps were up! That blunder cost me a year.

This was a great project, very challenging, very enjoyable and something to keep the spark alive after 20 years of observing just about "everything" and long bored of the normal showpiece objects. I had realized early on, the focus on drawing the objects forced me to be more alert and more attentive then when I just made notes. After starting the Herschel list I fully understood the impact of drawing the objects. I shifted from just being happy to see the object and straining to see any detail, even a sense of the shape, to being blown away from the eyepiece by the detail seen in the 9th to 12th magnitude Herschel galaxies. ✶